City of Raleigh

Department of City Planning

Department of Public Works

in partnership with NCDOT Rail Division

UNION STATION: Raleigh's Multi-Modal Transit Center

Public Review Draft

April 23, 2010

ACKNOWLEDGEMENTS

City Council

Honorable Charles Meeker, Mayor
Dr. James West, Mayor Pro Tem
Mary-Ann Baldwin
Thomas Crowder
Bonner Gaylord
Nancy McFarlane
John Odom
Russ Stephenson

City Manager

J. Russell Allen

Lead Agency

Department of City Planning
Mitchell Silver, AICP, Director
Kenneth Bowers, AICP Deputy Director

Project Team Members

City of Raleigh, Department of City Planning
Martin Stankus, AICP Project Manager
Dan Douglas, AICP, Former Manager, Urban Design Center
Roberta Fox, AIA – Raleigh Urban Design Center
Kristopher Larson
Grant Meacci, RLA, LEEDAP – Raleigh Urban Design Center

Additional Contributing Members
Elizabeth Alley
Trisha Hasch
James Marapoti

Mapping and Graphics Staff
Allison Decker
Frank Holyfield
Carter Pettibone, AICP
Aaron Sheppard
Rachel Mukai
Laura Underhill

ACKNOWLEDGEMENTS, continued

City of Raleigh, Public Works Department
Carl Dawson, PE, Director
David Eatman
Mike Kennon, PE
Eric Lamb, PE
Fleming El-Amin, AICP – Public Works Department

North Carolina Department of Transportation – Rail Division
Allan Paul, Director – Operations & Facility Branch
Michael Kozak – formerly of NCDOT Public Transportation Division
Craig Newton, PE

Consulting Team

HDR Architecture, Inc

In partnership with:
George Chapman, FAICP
John Milner Architects, Inc
Michelle Robinson, Architect

This study was funded by a grant provided by the U. S. Department of Transportation, Federal Transit Administration with a 10% match contributed by the North Carolina Department of Transportation and the City of Raleigh.

CONTENTS






1.0 Executive Summary



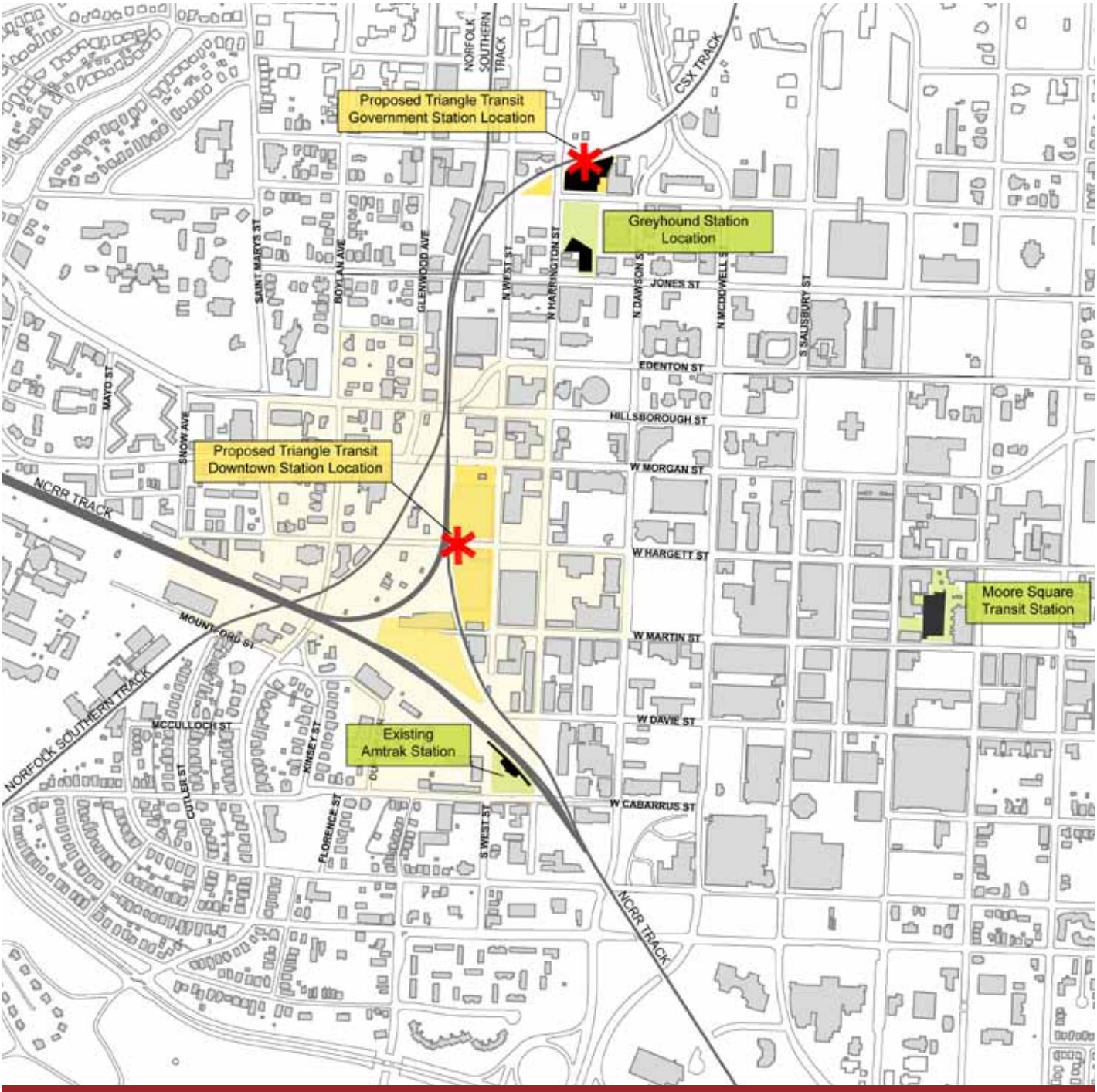



This Multi-Modal transit study has been prepared to create a conceptual design for a transit center which would connect multiple modes of transportation in a centralized location west of downtown in Raleigh's Boylan Wye Area. This facility, renamed Raleigh's Union Station, will serve to connect Southeast High Speed Rail, Amtrak, Triangle Transit rail (Diesel-Multiple Unit or Light Rail Transit technology), future commuter rail, Greyhound, Triangle Transit bus, and Capital Area Transit.

In 1891, the original Raleigh Union Station was built on the west side of Nash Square. The station offered railroad passengers a rail service location in the heart of downtown Raleigh. At the time, Raleigh was the thriving center of transportation in the South. From the 1830s through the 1850s the Raleigh & Gaston Railroad and the North Carolina Railroad intersection created the "Boylan Wye" (the heart of the Union Station study area). One hundred and nineteen years later, a vision is being proposed to recapture the importance of vital transit services to Raleigh. Like Grand Central Terminal and Penn Station in New York City, and the Union Stations in Washington DC, Boston, and Chicago, Raleigh's 'new' Union Station will serve as a gateway into Raleigh by offering access to the region, the State, and the East Coast metropolitan areas.

Demand for transit is growing as consumers seek more options. It is expected that over the next 20 years consumer preferences will shift towards public transit as the Baby Boom generation retires, the uncertainty of oil production intensifies, fuel prices continue to rise, traffic congestion worsens, health and environmental concerns increase and traditional land use and transportation patterns change.

Metropolitan areas will be the new drivers of prosperity over the next 50 years. Emerging 21st century cities and metropolitan areas will need transportation options to be competitive in the global economy. Projects such as Southeast High Speed Rail have the potential to more fully tie new markets in the southeast into the east coast and national transportation networks.



Existing Downtown Transportation Facilities

Raleigh's new Union Station will dramatically change the look and feel of the west side of downtown. Currently a low-density collection of warehouses and vacant land, Raleigh's Union Station stands to change the economic development potential of the area and offers the following advantages:

- **Increases transit use**
- **Establishes a transit identity**
- **Allows for plans for future modes**
- **Ties together western edge of downtown**
- **Anchors the downtown circulator**
- **Creates a gateway destination**
- **Maximizes developable space/parcels**

Introduction to Study

The Raleigh Union Station design and development strategy builds upon previous study recommendations including the 1995 Downtown Raleigh Intermodal Transportation Center Feasibility Study and the 2002 Downtown Raleigh Intermodal Facility Conceptual Study funded and prepared in coordination with the City of Raleigh, Triangle Transit, and NCDOT.

Funding for the study was provided by a Federal Transit Administration grant that included a 10 percent match by the City of Raleigh and the North Carolina Department of Transportation (NCDOT). A partnership of funding agencies including representatives from the City of Raleigh Public Works and Planning Departments and the NCDOT Rail Division initiated the study upon City Council authorization. A national Request for Qualifications resulted in the selection of HDR Architecture, Inc., to coordinate and prepare the data which was used in the creation of this report.

The current study explores and capitalizes on new opportunities made available by the inclusion of Southeast High Speed Rail, the Greyhound bus terminal relocation, the proximity of the Moore Square bus terminal, the Triangle Transit/ Cherokee/ Hamilton Merritt partnership, and the expanding downtown real estate market. The study seeks to meet the following goals:

- Identify the **location** of existing and future transit service areas
- Define the **facility elements** that contribute to and establish a sense of place
- Identify a **development strategy** for the surrounding area
- Provide convenient **connections** to the community, between station platforms, waiting rooms, and service areas

The body of the report addresses the following issues and provides further information and detail related to:

- Rail improvements necessary to accommodate existing and proposed rail passenger services and existing rail freight services within the Boylan Wye area.
- Rail operators and property stakeholder coordination as well as public comment opportunity.
- Connections between the various bus and rail transit modes and platform locations to accommodate the convenient movement of passengers between service platforms.
- Relationship of the Union Station facility to the Moore Square bus terminal.
- Development strategy for properties surrounding Union Station that provides land use and intensity guides.
- Vehicular and pedestrian circulation network enhancements in the study area to accommodate future development intensities and movement patterns between downtown and residential areas.
- Size and location of transit service facilities and parking estimates to address existing and future demands from Amtrak, SEHSR, Triangle Transit rail service, commuter rail services in the North Carolina Railroad (NCRR) corridor, Capital Area Transit (CAT)/ Triangle Transit bus service, and downtown circulators or streetcars.
- Cost estimates and phasing options for construction of the various facility components and opportunities for public/private partnerships.
- Management of implementation and funding opportunities.

Public input was received through stakeholder interviews and a Call for Ideas. Interviews were coordinated by HDR to gain insight on specific needs and issues relating to track locations and facility design with rail freight/transit stakeholder groups including North Carolina Railroad, CSX Transportation, Norfolk Southern, Amtrak, Triangle Transit, Southeast High Speed Rail, Capital Area Transit, and Greyhound. Interviews were also held with various community and real estate development stakeholders to inform the development strategy surrounding Union Station. These interviews included the North Central CAC, Downtown Raleigh Alliance, North Carolina State University, Greater Raleigh Chamber of Commerce, Cherokee Fund, Highwoods Properties, Trammel Crow, and LNR Property Corporation.

A Call for Ideas was advertised to provide an early opportunity for public input and idea generation on a multi-modal facility concept. A total of 23 direct responses were received from private citizens, neighborhood organizations, and professional firms. A summary of the responses is provided in the appendix of the study.

Conceptual drawings, prepared by City of Raleigh Planning Department staff and others, illustrate engineering constraints and requirements; layout alternatives for tracks, platforms, and the interior of the facility; and the development strategy for the surrounding area. All drawings are conceptual in nature and subject to change as stakeholder needs, transit engineering requirements, and public input continue to evolve and inform the process.

Location

The location of the multi-modal facility is determined by the location of the intercity passenger rail services, under the assumption that this travel mode is an essential tenant of any transit hub . This places the Raleigh Union Station facility in the vicinity of the Boylan Wye: from Boylan Avenue to South West Street, and from West Morgan Street south to West Martin Street.

The Boylan Wye is one of the most complicated set of interlockings, junctions, and crossings within North Carolina. Freight and passenger lines and facilities in the area include CSX Transportation and Norfolk Southern freight and the existing Amtrak Station serving the Silver Star, Carolinian, and Piedmont trains. Future services and facilities include Triangle Transit regional rail, Southeast High Speed Rail, and commuter rail in the NCRR corridor.

Engineering requirements of the trains and their associated tracks are the determining factor in the location of passenger platforms and influence the overall layout of a train facility. Engineering considerations must take into account the physical requirements of trains. In the Boylan Wye, these requirements primarily relate to the curvature of the track and the clearance required over tracks. To meet ADA requirements, the platforms must be located on tangent (straight) track and may need to be raised to permit level boarding. There is no single location where all envisioned trains share a common set of tangent tracks. Consequently, all sides of the Boylan Wye have the potential for some passenger trains. The location of the platforms and the Raleigh Union Station will require some compromise. This report presents platform and facility locations based on the best information to date. Alternative facility locations have been investigated and are presented in the appendix.

The two legs of the Boylan Wye that can serve the greatest number of trains are the northern and western legs. With the rail platforms located as indicated, the location of Union Station midway between the platforms is the block bounded by West Morgan Street, West Hargett Street, South West Street, and the railroad. This block and others have been purchased by Triangle Transit as part of its previous regional plan. Use of this land requires Triangle Transit's support of the project.

Facility Elements

The first impression of a place plays a significant role in shaping opinions of that place and forming its identity. The elements that create a strong sense of arrival are important to the facility design concept and include:

- Signature public spaces: impressive interior lobby and outdoor plaza area
- Landmark architecture: to give prominence to the facility
- Destination retail: to serve passengers as well as the broader public

The concept proposed for the Raleigh Union Station is based upon the provision of a central lobby similar to the arrangement accomplished at Union Station in Washington, DC. The central lobby space serves not only as a grand public space, but also contains ticketing, waiting, information displays, and retail opportunities. Public space, for art displays, public activities such as health fairs, or meeting areas is provided.

Important guiding elements of the facility design include creating a landmark architectural statement with a dominant vista down Hargett Street visually linking the center to the heart of downtown Raleigh.

Off the lobby, concourses lead to multiple gates and different travel modes. Pick-up and drop-off activity occurs at the front door of the station at Hargett Street. Taxi service, circulators, and private vehicles would connect with travelers. Parking access is provided nearby on West Street in a parking deck. There is easy access for cars from the lobby entrance, and with enclosed pedestrian connection from the parking deck into the lobby space. Public access to the intercity rail modes will be through the main lobby located on the second level.

Space requirements for the facility were estimated for three building elements: passenger processing (ticketing, baggage, back office), waiting lounges, and retail/amenity space. The estimates were developed from the projected ridership levels on each of the travel modes applied to industry guidelines.

The total station size is estimated to be about 44,800 square feet. In the near-term, approximately one-third of the total space, or 16,300 square feet, is required. The majority of the additional square footage will accommodate additional intercity and regional rail services as they are introduced.

The development scenario proposed in the report recommends a facility build-out to accommodate current needs, near-term future needs, and long-term future needs (up to 44,800 square feet) to allow for expansion of services over time. This base understanding of square footage does not include the potential of including high-density retail and office space above the facility in a future development.

Passenger Processing Needs by Mode

Mode:	Square footage
Amtrak	4,800
Intercity Bus	9,400
Local Bus	2,100
Regional or Commuter Rail	(3,400)
Southeast High Speed Rail (included in future needs)	(28,000)
TOTAL : Near-Term Needs	**16,300**
TOTAL : Future Expansion Needs	**44,800**

Development Strategy

Primarily residential before the Civil War, the Boylan Wye area afterwards became increasingly industrial and warehouse oriented. Today, the industrial uses have moved away and most of the old warehouses that are occupied are now home to a variety of businesses. The most significant warehouse buildings are located in the Depot District which is listed in the National Register of Historic Places and retains a unique built character in Raleigh. The residential area on the west (Boylan Heights) has remained strong, but the residential area on the north has long since been replaced by low-density businesses. As a major public facility in a strategic location, Raleigh Union Station will be a major shaper of new development patterns. The area should be mixed-use and respond to the influences of the surrounding districts including Downtown, Depot District, Glenwood South, and Boylan Heights.

The downtown core contains a significant supply of traditional high-rise office developments. As prime sites in the core are developed, additional growth in office and other commercials uses with high employment densities will need to happen elsewhere in the downtown. This project provides the best opportunity for larger scale development.

The unique nature of the project area with variations in elevation and potentially a large area remaining in between rail lines could provide an opportunity to develop a major recreational facility and a signature public space. Such a facility could include indoor and outdoor, as well as active and passive, elements.

While there exists a large supply of existing retail space and certain retail segments such as food/beverage/entertainment are well represented, other segments such as convenience items and comparison goods have real and perceived shortages. Specifically, the City identified $32 million in unmet retail demand in 2007 based on a study.

Convenient Connections

Current freight activity is moderate, but this volume is expected to increase with the overall growth of freight traffic, especially with the reopening of the CSX "S" line to the north. The freight railroads anticipate they will need additional sets of track to accommodate this increase in volume.

Amtrak operates three passenger trains through the Boylan Wye – the Piedmont from Raleigh to Charlotte; the Carolinian from Charlotte to New York, and the Silver Star from New York to Miami. An environmental study is underway to determine the impacts of implementing high-speed passenger rail service (SEHSR) that would ultimately extend from Washington, DC to Charlotte, NC. The initial phase is between Raleigh and Richmond, VA using a more direct corridor that has not seen passenger service since the mid-1980s.

Along with the intercity passenger rail, Triangle Transit is studying the potential for local/regional rail services from Raleigh to Durham and Chapel Hill. Under current consideration is the use of a different vehicle technology, Light Rail Transit (LRT) similar to the new system in Charlotte.

Along with the passenger rail service, bus services are envisioned to be relocated to the area. Local CAT bus services in the vicinity would be rerouted to serve Union Station and provide the collector/distributor function. Triangle Transit is anticipating a substantial increase in its transit services whereby Raleigh is connected with Franklinton, Zebulon, Selma/Smithfield, and Fuquay-Varina. Already new express services to Wake Forest, Zebulon/Wendell, and Knightdale have established a momentum for bus transit.

Future transit services include additional Amtrak services, Southeast High Speed Rail, Triangle Transit bus and commuter rail, commuter rail within the North Carolina Railroad corridor, Greyhound bus services, and bicycle facilities.

In addition to transit services, the Raleigh Union Station will have easy and convenient connections to its surroundings. The connections will include pedestrian and bicycle modes.

Next Steps	
Phase:	Budget (millions)
Phase 0 — Environmental Clearance and Preliminary Engineering	$10 – 11.3
Phase I—Amtrak relocation	$31.6 – 41.7
Phase 2—Greyhound Relocation	$16.6 – 29.1
Phase 3—Full Station Build out	$74.2 – 139.6
TOTAL	**$150.9 – 212.4**
Estimated City of Raleigh Contribution (@10%)	**$15 – 20 million**

Next Steps

The need for a multi-modal transit center arises when the Amtrak station is relocated and additional rail passenger services are implemented including the Southeast High Speed Rail and Triangle Transit commuter rail. The initial phase of work should be to obtain the environmental Record of Decision for the entire Union Station project, and the completion of the preliminary engineering phase for the Raleigh Union Station.

An immediate need is the relocation and expansion of the existing Amtrak station to provide increased passenger and parking capacity for existing services. The environmental work and interim Amtrak station could proceed together in the near term with the funding, design, and construction of the Raleigh Union Station following over the long term based upon a projected passenger service implementation timeframe.

The entire cost for the environmental clearance and preliminary engineering, the Amtrak Relocation, Greyhound Relocation, and full station build-out would cost between $151 million to $212 million. A more detailed breakdown on the phasing and cost can be found in Section 6: Project Phasing.

Transportation projects typically include 80 percent Federal funding, 10 percent State, and 10 percent City funding. The City of Raleigh expects its contribution to the facility would range from $15 to $21 million; however, this number is subject to change dependent on the construction industry, emerging transportation needs, and other constraints which change the original parameters of this study.

Recommendation

The report recommends that the City of Raleigh enter into an Inter-Local Agreement to obtain site control to design, build, and operate the Raleigh Union Station. Refer to Section 4 for additional information.

Further, the City of Raleigh would create a new entity to perform these tasks:

- Initiate and manage Phase 0 – Environmental Clearance and Preliminary Engineering
- Locate and obtain funding sources and determine if the currently proposed 1/2 cent sales tax funds can be applied to this project
- Develop a public input strategy
- Proceed with facility development

2.0 Introduction

Scope of Study

The objective of the Union Station design and development strategy is twofold: first, to prepare a conceptual multi-modal transit center design that coordinates the location of various existing and future transit service areas with convenient connections among service platforms; and second, to prepare a development strategy for properties within and in the vicinity of Union Station.

Multi-Modal Center Study Area

Project Area

The Union Station design and development strategy builds upon previous study recommendations while exploring and taking advantage of new opportunities including Southeast High Speed Rail (SEHSR), the Greyhound bus terminal relocation, the Moore Square bus terminal, the Triangle Transit station location, future commuter rail service, the Triangle Transit/Cherokee Investment/ Hamilton Merritt partnership and the expanding downtown real estate market. The Union Station study addresses the following areas:

- Rail improvements necessary to accommodate existing and proposed rail passenger services and existing rail freight services within the Boylan Wye area.
- Connections between the various bus and rail transit modes and platform locations to accommodate the convenient movement of passengers between service platforms.
- Size and location of transit service facilities and parking estimates to address existing and future demands from Amtrak, SEHSR, Triangle Transit rail service, commuter rail services in the North Carolina Railroad (NCRR) corridor, and Capital Area Transit (CAT)/ Triangle Transit bus service.
- Relationship of the Union Station facility to the Moore Square bus terminal and the benefits/detriments associated with relocating the bus terminal to Union Station.
- Cost estimates and phasing options for construction of the various facility components and opportunities for public/private partnerships.
- Development strategy for properties surrounding Union Station that provides land use and intensity guides.
- Vehicular and pedestrian circulation network enhancements in the study area to accommodate future development intensities and movement patterns between downtown and residential areas.
- Rail operators and property stakeholder coordination as well as public comment opportunity.
- Management of implementation and funding opportunities.

The Union Station study is intended to identify opportunities and feasibility for creating a shared transit facility and to identify the infrastructure needs of the surrounding area to support the facility. In considering the implementation of any of the identified opportunities, coordination with the various property owners, rail freight operators and transit service providers will be necessary and expected to achieve the envisioned goals. The planning process has included outreach to all stakeholders and surrounding neighborhoods for this purpose and is expected to continue as an essential element to realizing the goal of a shared transit facility that connects to the surrounding community.

Multiple Modes of transportation and Multiple Users meet at a Multi-Modal Center

Multi-party Partnership

A partnership of the funding agencies was formed to provide oversight upon the initiation of the Union Station study including representatives from the City of Raleigh Public Works and Planning Departments and the NCDOT Rail Division. During the project research and development process, the partnership members met with the consultant on a bi-monthly basis to review findings and provide guidance on recommendations. Additional partnership meetings were held to discuss, reach consensus and provide guidance on specific issues. Meetings were also held with rail freight/transit stakeholder groups to gain insight on specific needs and issues relating to track locations and facility design. The coordination between the partnership agencies should continue and may expand to include other public and private agencies as transit opportunities evolve and Union Station implementation actions are considered.

Funding for the preparation of the Union Station Plan and Development Strategy was provided by a Federal Transit Administration (FTA) grant which included a 10 percent match by the City of Raleigh and the North Carolina Department of Transportation (NCDOT). Additional City of Raleigh contributions were provided to address specific issues including the feasibility of connecting South Saunders Street to West Street to offer better access to Union Station.

Framing the Problem

Over the next 20 years, changing demographics, consumer preferences and new attitudes about the environment will change the way Americans travel for business, leisure and commuting. Public transportation ridership has reached its highest level in 52 years, according to a survey released by the American Public Transportation Association. The 10.7 billion transit trips Americans took in 2008 amounted to a 4 percent increase over trips taken in 2007 (Source: Lena H. Sun, Washington Post Staff Writer, Monday, March 9, 2009).

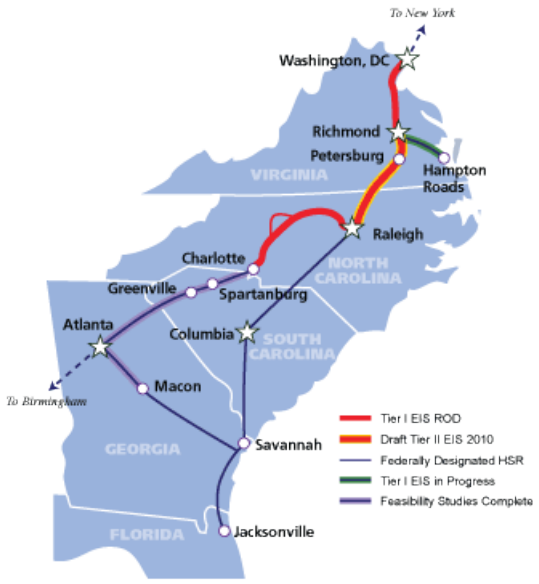
Demand for transit is growing as consumers seek more options. It will be no surprise over the next 20 years when consumer preferences shift towards public transit as the Baby Boom generation retires, the uncertainty of oil production intensifies, fuel prices continue to rise, traffic congestion worsens, health and environmental concerns increase and traditional land use and transportation patterns begin to change.

It is also no surprise that President Obama unveiled a blueprint for a new national network of high-speed passenger rail lines to reduce congestion, cut dependence on foreign oil and improve the environment. The Southeast High Speed Rail Corridor extending from Washington, DC to Jacksonville, Florida has been identified as one of the 10 high-speed corridors in the president's plan. This corridor extends through many of the major southeast metropolitan areas including Raleigh.

Public transportation ridership has reached its highest level in 52 years

Southeast High Speed Rail Revised Projected Milestones	
late 2009	Complete Initial Draft EIS, Richmond to Raleigh
early 2010	Draft EIS out for public review
May 2010	Public Hearings (times/locations to be announced)
April 2011	Complete Final EIS
July 2011	Record of Decision from Federal Railroad Administration (FRA) & Federal Highway Administration (FHWA) for the Rail Project with associated highway work. The Trail Concept will have a separate decision document.

source: www.sehsr.org; March 1, 2010



As evidenced around the world, metropolitan areas will be the new drivers of prosperity over the next 50 years and emerging 21st century cities and metropolitan areas will need transportation options to be competitive in a global economy. Rail and bus transit options are being considered for expansion in the Raleigh area. Southeast High Speed Rail has the potential to more fully tie new markets in the southeast into the east coast and national transportation networks. The southeast has seen an economic surge and sustainable transportation will contribute to sustaining this growth further into the 21st century. The NCDOT is applying for American Recovery and Reinvestment Act (ARRA) funds to help further develop this corridor. Amtrak intercity passenger rail service currently provides six trips through Raleigh and additional round trips are planned to accommodate increasing service demands. Triangle Transit is studying the potential for local and regional passenger rail service from Raleigh to Durham and Chapel Hill. The Capital Area Metropolitan Planning Organization (CAMPO) 2035 Long Range Transportation Plan (LRTP) includes a commuter rail service from Clayton to Wake Forest projected for operation by 2025.

Raleigh is fortunate in that all of these existing and future services will make passenger stops in the Union Station area and provide the opportunity for a transit hub that can become the "Gateway to the South" from northern metropolitan areas. Throughout the United States, transit hubs serve as gateways and connections to other regions. A transit hub in downtown Raleigh would add to Raleigh's competitive edge and serve as the ideal gateway to a 21st century economy.

Though Raleigh is fortunate to have the opportunity to concentrate existing and future rail services in a single location providing convenient access to downtown Raleigh and easy transfers among transit services, the difficulty of coordinating the multiple track alignments, passenger platforms and service areas within a shared facility is one of the primary challenges of this study.

Property Ownership

Transit stakeholders group included:

Stakeholder and Outreach Process

HDR conducted a two prong process to solicit input from the public, stakeholder interviews and a Call for Ideas (CFI). Two categories of stakeholders were interviewed. The first category of meetings involved interviews with a broader group of individuals representing the development community, neighborhoods, and other public and private agencies concerned with downtown and the project area. This group of stakeholders was tapped to gain their insight on issues pertaining to land use and development and to a lesser extent on transportation issues.

The second category of stakeholder interviews dealt with transit stakeholders (Triangle Transit, Amtrak, NCDOT, freight railways, Greyhound, CAT) to ascertain their views and future needs primarily in the transportation arena. The Call for Ideas is used as an early step in a public dialogue designed to gather ideas that will help promote quality development. It was not intended to replace other forms of public participation in the planning process, but rather to provide a base for those discussions and to provide an earlier opportunity for public input. In this case, it is intended as an early step in gaining public comment and ideas for the development of a future multi-modal transit center and its surrounding area in downtown Raleigh. Following is a brief summary of the input received through the stakeholder interviews. Additional details are provided in the appendices. The input received via the Call for Ideas is summarized in Section 4 of this report. Again, additional details from the Call for Ideas process are included in the appendices.

Development and Community Stakeholders

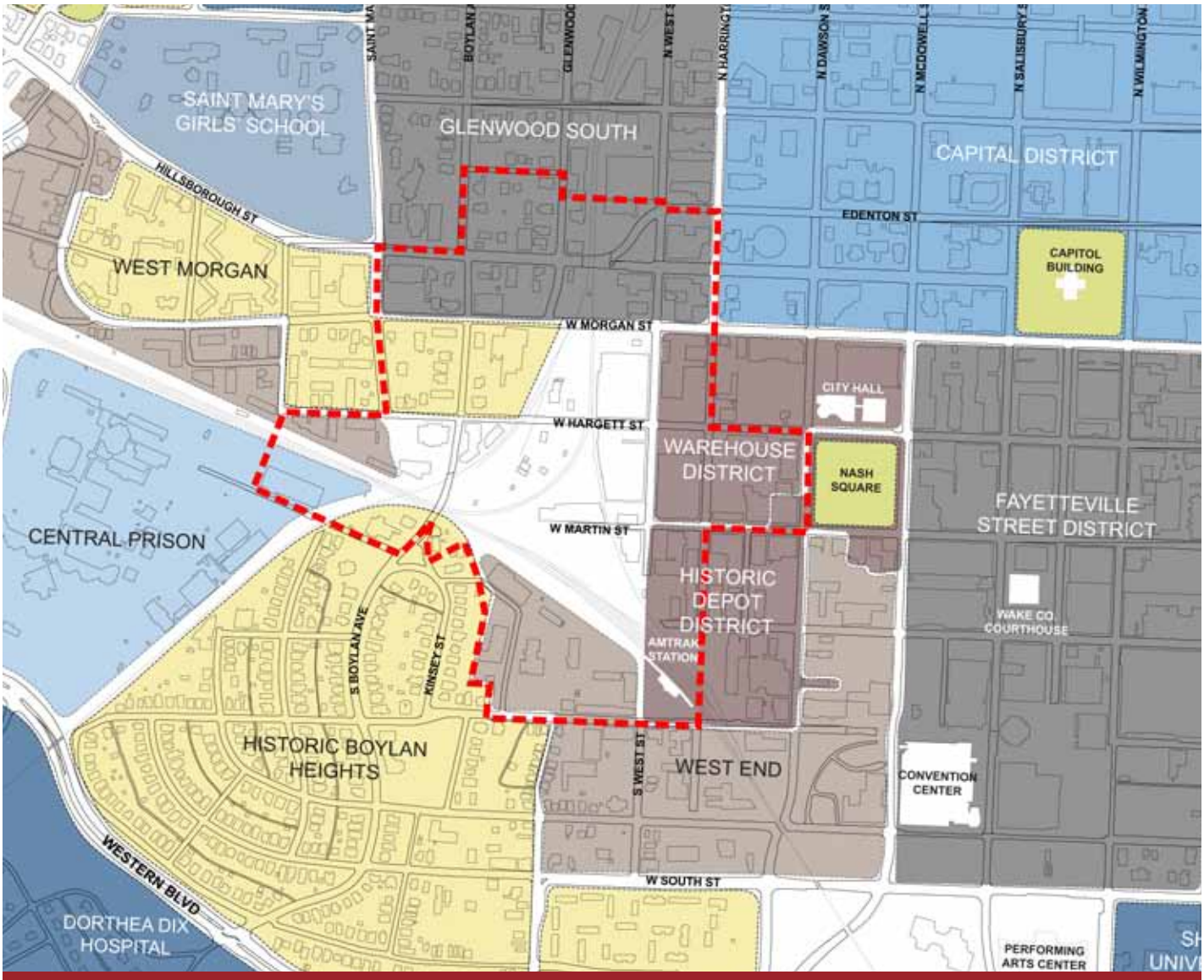
Interviews with the broader group of stakeholders (real estate development community, neighborhoods, public and private agencies) can be summarized as follows. Despite a variety of perspectives and backgrounds, the interviewees struck many of the same chords and confirmed much that has been discussed by HDR and the City of Raleigh to this point in the study. In general, the interviewees saw the future of the project area as a unique mixed-use area that would bring its own character to downtown. In defining this concept, three key themes emerged from the interviews. They are: *Focus, Connectivity* and *Amenities*.

Three key themes emerged from the interviews: FOCUS, CONNECTIVITY, & AMENITIES

1. **Focus:** The project area offers significant development promise; however, the area is in need of a vision or focus to bring it along. The focus should be on creating a unique and memorable place that is a "gateway" to Raleigh with a distinct identity that links this area with the downtown and the larger city.
    a. Union Station may be able to help provide this focus. There is some support for the notion of a "grand lobby" or other signature public space as part of the facility, but this is not fully defined.
    b. The area should be developed with its own character that differs from the rest of downtown and adjacent neighborhoods. This character should be pedestrian and transit oriented.
    c. Office space or other professional employment related space should differentiate itself from product offered elsewhere in the vicinity (e.g. Fayetteville Street, Centennial Campus). Other uses (residential, retail) should be part of the mix in the area as well and should also contribute to the area's character.
    d. Retail development at a critical "mass" can contribute to creating a memorable and distinct "place". Other uses such as arts and entertainment can also help.
    e. Differentiation of the area should come not only from the specific character and functionality of individual buildings or developments, but from the overall development pattern in the area and from public spaces.

2. **Connectivity:** One dynamic that works against the project area is the real and perceived lack of connectivity to other areas downtown and near downtown.
    a. Public improvements such as street extensions, enhanced streetscapes, a downtown circulator, way-finding, other public spaces, can provide connectivity.
    b. Union Station will be a key public facility and factor in connectivity. It will be the location where all transportation modes in the region will come together.
    c. Establishing retail streets that serve the project area and that are accessible to other areas downtown could contribute to connectivity; active streets provide better connections.
    d. Beyond just the project area, an effective and diverse transportation system will help the region remain competitive.

3. **Amenities and Infrastructure:** Access to employment and entertainment are two amenities currently existing downtown. Additional amenities are needed to enhance downtown's attractiveness as a preferred location to live, work and visit.
    a. Existing downtown amenities should be used to contribute to "branding" or marketing the project area.
    b. Retail in downtown is generally lacking beyond food and drink establishments. Basic services, conveniences and general merchandise retailers are needed to support additional development.
    c. Community facilities such as a library and wellness/fitness uses are also needed.
    d. In addition to contributing towards connectivity, enhanced streetscapes and public spaces can be an amenity that improves the attractiveness of the area and contributes towards the area's character and special identity.



Surrounding Influences

In addition to these themes, current real estate market dynamics were a topic in most discussions. The parties interviewed generally see the Raleigh area as a growth market. The market is certainly in a slow down and undergoing an adjustment along with the rest of the country. However, the general view is that the Raleigh market will outperform the nation as a whole in the foreseeable future. The region benefits from being strongly positioned in the "knowledge economy" and from providing a high quality of life at prices that are still below much of its competition nationally. Downtown Raleigh will continue to compete effectively for job generating development and will increasingly be an attractive place to live.

Transit Stakeholders

Interviews with transit stakeholders concentrated on current operations and projected future changes to service and facility requirements. These interviews were conducted in 2007/2008 and the following summarizes the core themes raised.

- All stakeholders are interested in the project and want to be a part of it.
- Passenger providers want to co-locate but have separate support facilities
    - Passengers should be able to move easily from one mode to the next
    - Each mode wants their own passenger waiting area
    - Each mode wants an individual entrance
    - Each mode has different operating hours, up to 24 hours/day
    - Vehicle areas should be separated and under each operators' control
- Freight railroads are experiencing an on-going expansion in demand
    - Capacity expansion must be preserved
    - Current NS, CSX, NCDOT yards north of the Wye will be maintained
    - NS will continue to use storage yard at Amtrak station
- Union Station is located in a key area of downtown
    - The site is surrounded by redeveloping residential areas, the Glenwood South entertainment area, and the new convention center and hotel
    - Transit services at Union Station could generate 7,500 daily transit boardings, or 15,000 daily transit trips (boardings+alightings)

In addition to the community and development stakeholders, transit stakeholders were communicated with throughout this study. The findings and analysis associated with these communications along with the detailed input gained through the stakeholder interviews inform many of the central recommendations for the Union Station and are presented throughout this report.

Raleigh Union Station, 1940

Historic Context

Freight Service

In the 1830's, Raleigh businessmen won approval to create the Raleigh & Gaston Railroad and first affects of rail were felt in the project area. With the completion of both the new railroad and State Capitol in 1840, storefronts soon began to replace residences and Fayetteville Street had the inklings of Raleigh's first commercial core.

Opening in 1856, a second railroad was built from Goldsboro through Raleigh and on to Charlotte with linkage to the port of Charleston. The North Carolina Railroad now connected Raleigh by rail to most of North Carolina, Virginia and South Carolina and quickly became a center of transportation in the South.

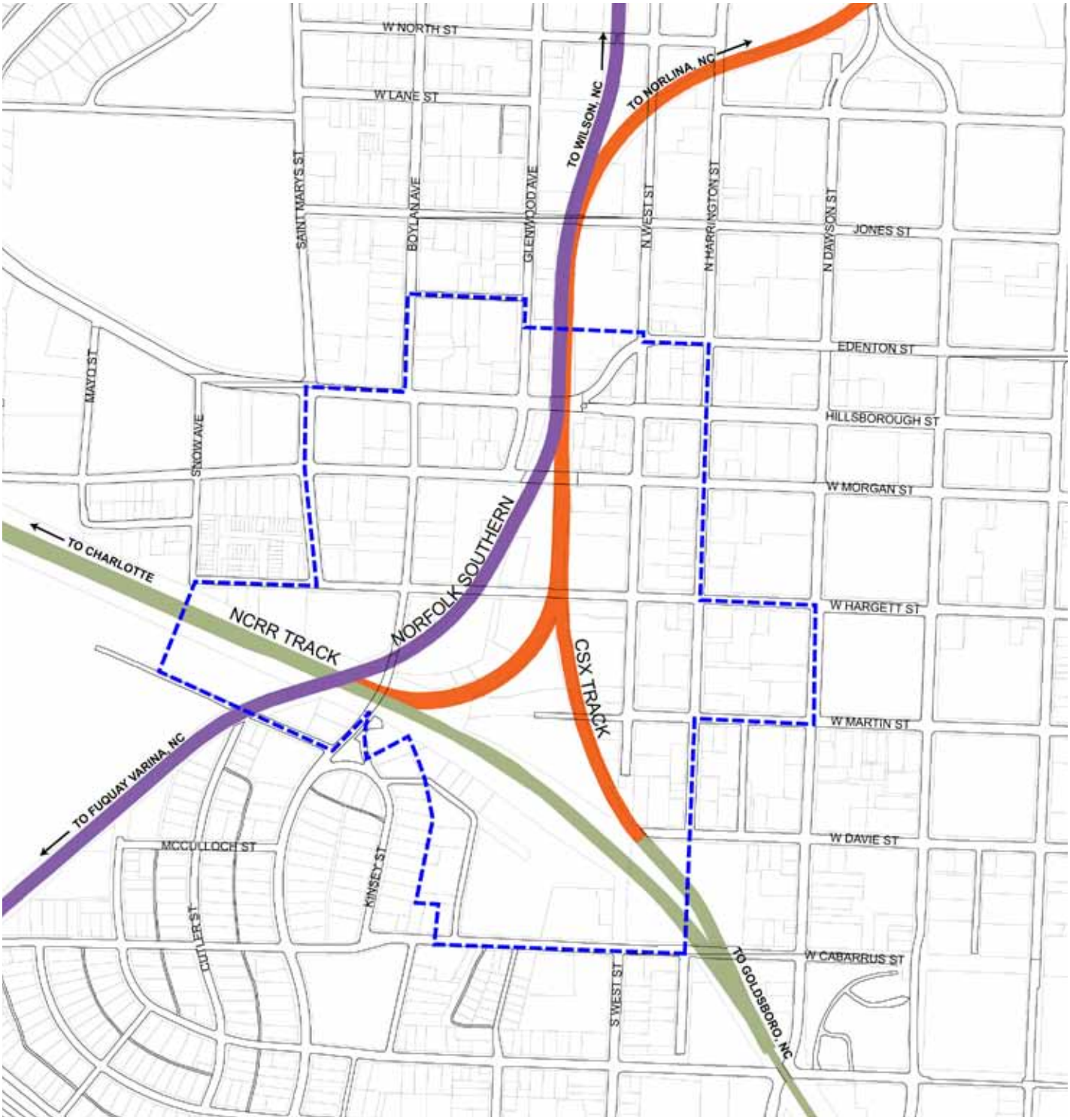
The intersection of these two major railroads created the "Boylan Wye" (the heart of the Union Station study area), located just five blocks west of Raleigh's then central business district. The original Wye was bounded by the North Carolina Railroad (NCRR) on the south and the Raleigh & Gaston Railway (now part of the CSX rail system) on the east and west. In 1906, the Boylan Wye became more complicated with the addition of the original Norfolk Southern (NS) Railway. Norfolk Southern's tracks were added west of the original Boylan Wye, and connected Raleigh with Fuquay Springs and Varina to the south and Knightdale/ Wendell/Zebulon to the east. The new tracks resulted in a diamond intersection west of the Wye, and included interlockings (switches) with the CSX tracks (known as the "S" Line) which also provided access to the NCRR tracks (known as the "H" Line). Today, these diamond

Diamond Intersection

intersections are viewed as undesirable because of the delays that they cause to freight movements, but at the time it was a cost-effective way to add service to the south.

The Wye encompasses 17 acres within the railroad tracks from West Hargett Street to South Boylan Avenue to West Cabarrus Street. The smaller Wye, inside of the CSX tracks, is approximately 10 acres, with the remaining 7 acres located between the CSX and NS tracks on the western side of the Wye.

The Boylan Wye is one of the most complicated set of interlockings, junctions, and crossings within North Carolina. There are three railroad companies owning property and two railroads operating freight service, plus Amtrak service. The North Carolina Railroad (NCRR) owns the southern side of the Wye, including the legs to NC State to the west and Selma to the southeast. CSX owns the eastern set of tracks, and operates freight service on this line as well as along the northern track in the NCRR corridor to the west as far as Fetner Junction in downtown Cary. Norfolk Southern (NS) owns the western set of tracks and provides service on this line, including service to Fuquay-Varina to the south, and along the length of NCRR's corridor. The CSX "Raleigh" yard and the NS "Glenwood" yard are located just north of the Wye on either side of Capital Boulevard. NCDOT-Rail also has a yard in this area, adjacent to CSX's yard. From here, the Amtrak *Piedmont* service starts and ends its trips.



The Boylan Wye is one of the most complicated set of interlockings, junctions, and crossings within North Carolina.

Raleigh's Historic Union Station

Passenger Service

This area has been the site of a passenger depot since 1891 when the railroads joined together to establish the "Union" Station, where all passenger railroads connected. The Union Station was constructed by the Raleigh and Gaston Railroad, a predecessor of the Seaboard Air Line, at the corner of Dawson and West Martin Streets. It also served the Norfolk Southern Railway and the Southern Railway. Being a stub-end station, Union Station was inconvenient to operate.

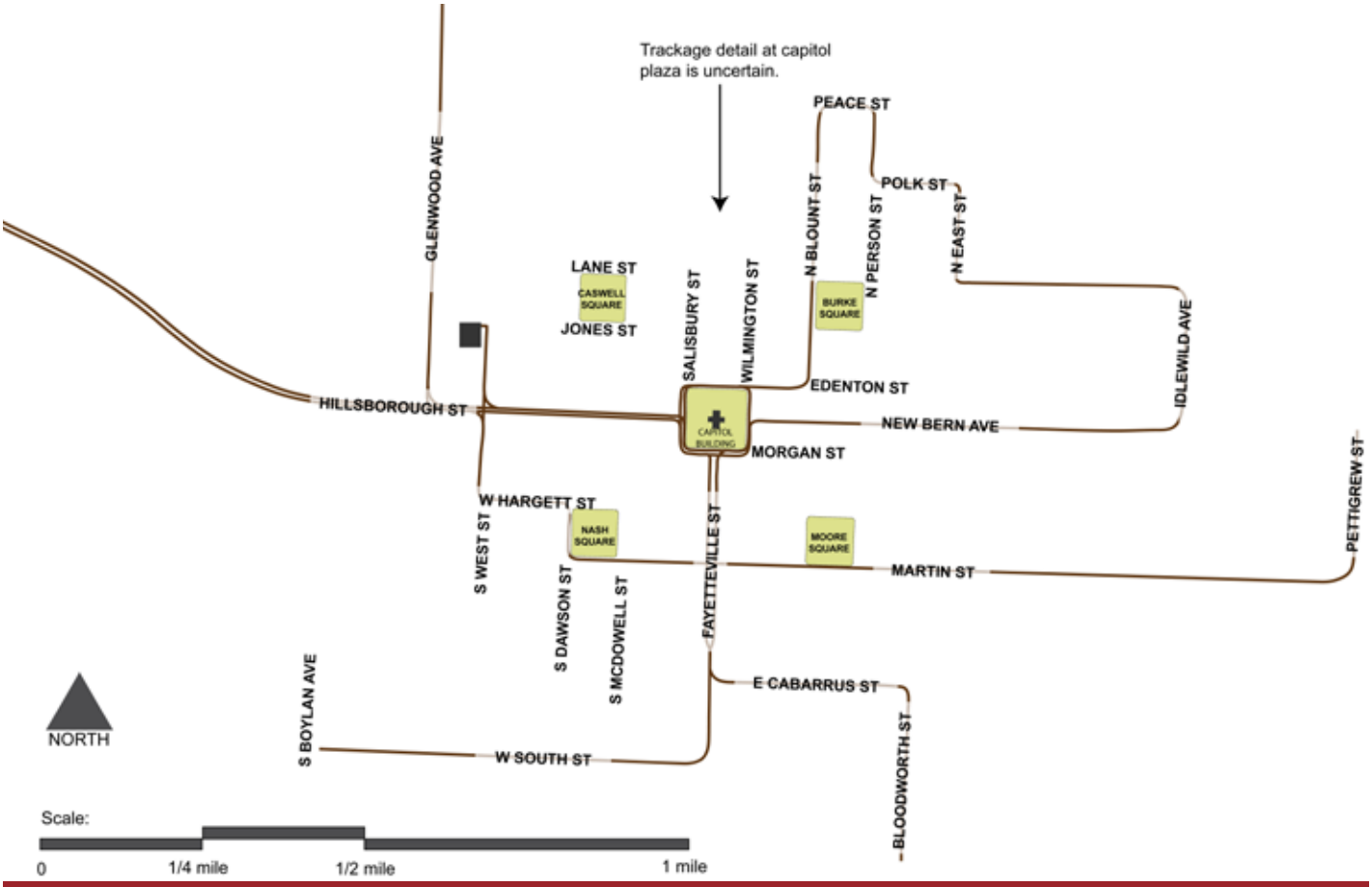
Seaboard built a new run-through station for itself in 1942, as did Southern in 1950. By that time, Norfolk Southern had discontinued its passenger trains. The Union Station was closed and sold, surviving today at the northwest corner of Martin & Dawson as a non-descript office building. The tracks and distinctive tower have long since been removed. The current Amtrak passenger service operates out of the old Southern Railway station on the southern side of the Wye, near Cabarrus Street.

Raleigh's Union Station (at Nash Square)

Current Amtrak Station

Besides the passenger train stations, the area has a history of streetcar lines. Hillsborough Street was a major focal point for streetcars, with lines radiating to NC State and north on Glenwood Avenue. One line passed directly by the Wye along West Street, Hargett Street, Dawson Street, and Martin Street. This routing placed the streetcar at the front door of the 1891 Union Station. The streetcars crossed the railroad tracks by going over them along Hillsborough Street, or going under them along South Street.

Historic Streetcar on Fayetteville Street, 1909



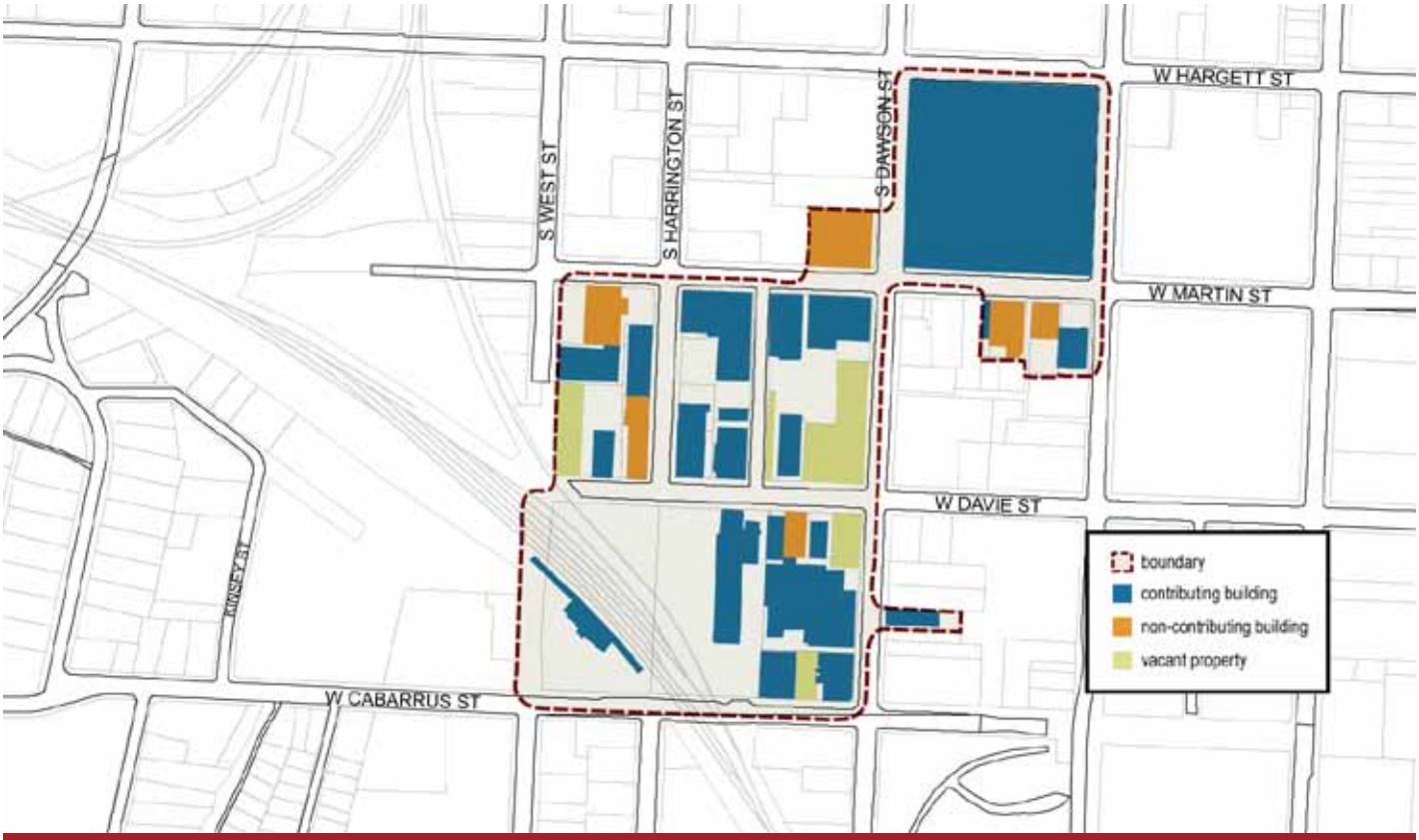
Recreation of Historic 1922 Streetcar Line Map

Land Uses

Land development in the area has changed over the years. Before the Civil War, the area was primarily residential on the east and vacant on the west and south, but as Raleigh resurged after the war, the area increasingly became industrial and warehouse oriented.

By the 1880's, the vacant land began to transition to residential. This transition was furthered by Raleigh's streetcar expansion, which by this time included a downtown route, a ten block circulator and three radial spurs to the north, east, and west. Traversing and skirting the central business district, the tracks connected downtown to the "suburban" fringe and four suburban, middle-income neighborhoods sprung up beyond the Wye – Boylan Heights and Cameron Park to the west, and Glenwood and Brooklyn to the north. To the northwest, Hillsborough Street became the location of fine residences and the streetcar provided connection to the colleges and the University on the west side.

Commerce continued to flourish. Due to its location, Raleigh became the region's wholesale distribution center. In 1912, Southern Railway built a new freight depot. On average, seventy-eight railroad cars filled with goods were received and shipped out each day in 1929. Raleigh was home to seventy-six wholesale businesses, many situated along the railroad sidings. By 1914, the area housed an ice plant, iron works, a mattress company, a seed & fertilizer company including a ginnery, a large coal & wood yard, and the CP&L gas plant. Even with these industrial uses, a strong residential component remained on the western and northern sides of the Wye.



Depot National Register Historic District

While the suburbs grew, industrial and wholesale facilities slowly displaced the urban residential dwellings in the blocks near the Freight Depot. From the 1930's through the 1960's, houses in the Wye area were demolished and warehouses went up, giving the Depot District its name and much of its present-day appearance.

In the current day, the industrial uses have moved away and as most of the old warehouses are now home to a variety of businesses, notably a number of antique shops, art galleries, restaurants and bars. The residential area on the west (Boylan Heights) has remained strong, but the residential on the north has long since been replaced by low-density businesses.

Downtown Raleigh benefited from the real estate boom of the last decade and continues to carry momentum into the downturn. The City of Raleigh's Livable Streets Plan has been a development catalyst. Commercial, residential, and public sector developments continue to be announced. A number of historic preservation efforts are underway and developers from across the country have taken notice. As of 2008, it was expected there would be $2.0 Billion in investments and more than 10,000 people living downtown by 2010.

Some activity in the Depot District has picked up, but development has generally lagged in the Wye area, likely due to uncertainty over the timing and nature of future transportation investments. Today, the Wye and surrounding area is in transition, with some remaining light industrial uses alongside redeveloped buildings housing new restaurants and other commercial uses. To the east, there's wonderful Nash Square and a portion of the Depot National Register Historic District, and, in general, warehouses dominate the area. Individually most lack style; yet as a group, they create a unique contextual fabric of authenticity in a city

where history is a source of pride. Some of these once-abandoned structures are gaining life, joining a handful of deep-rooted businesses such as the Roast Grill; yet, much of the area awaits redevelopment with surface parking lots covering substantial areas. Downtown development activity, combined with existing and proposed transportation and transit systems, has rekindled interest in the Wye, an area with a colorful past.

The Raleigh Historic District's Commission has completed a study to designate the area as a local district. The designation is on hold pending property owner support.

CAPITAL CITY CAMERA CLUB

A number of the buildings in the Depot District have been rehabilitated and adapted for reuse .

Existing and Future Services

Freight Growth

The area of the Wye continues to be a major crossroads for rail freight, with CSX and Norfolk Southern both operating through the area, and each having a separate yard on the north side of downtown. Current freight activity is moderate, but this volume is expected to increase with the overall growth in freight traffic, and especially with the reopening of the CSX "S" line to the north. Currently, this line terminates at Norlina, near the Virginia border. As part of the studies to establish high-speed passenger rail, the "S" line is envisioned to be reactivated from Norlina to Richmond, VA. Should this occur, the line could see a significant increase in freight traffic as this line is parallel to CSX's main north/south line through Rocky Mount and Fayetteville. The freight railroads anticipate they will need additional sets of track to accommodate this increase in volume.

Intercity Passenger Rail

Amtrak has three passenger trains through the Wye – the Piedmont from Raleigh to Charlotte; the Carolinian from Charlotte to New York, and the Silver Star from New York to Miami. Each of these trains offers one trip per day in each direction, for a total of six trips through the Wye. An additional round trip is planned to be offered on the Piedmont during the midday, beginning the summer of 2010.

An environmental study is underway to determine the impacts of implementing high-speed passenger rail service that would ultimately extend from Washington, DC to Charlotte. The initial phase is between Raleigh and Richmond, VA, and would be located on the CSX tracks through the Boylan Wye. The study anticipates eight round trips between Raleigh and Charlotte, and four round trips between Raleigh and New York City. These trips will consist of conventional passenger rail (the current Amtrak service) and the new high-speed rail. The introduction of these additional trips will require additional freight/passenger tracks through the Wye.

Local/Regional Passenger Rail

Along with the intercity passenger rail, Triangle Transit is studying the potential for local/regional rail services from Raleigh to Durham and Chapel Hill. These plans are in a state of flux. Previously, Triangle Transit envisioned passenger rail service within the same corridor as the freight service, but operating on its own set of tracks. This service would use Diesel Multiple Units (DMU) vehicles, essentially a self-propelled passenger car. The DMUs are smaller than Amtrak's trains, but these vehicles are still substantial. They would have to operate within the railroad rights-of-way, and would have to be grade-separated from the freight tracks. This service is the official Triangle Transit plan, and the agency has bought several blocks on the east side of the Wye and within the Wye to implement this plan. Recently, Triangle Transit has hired consultants to revisit the alignment and station locations. The report is anticipated in early 2011.

Under current consideration is the use of a different vehicle technology, Light Rail Transit (LRT) similar to the new system in Charlotte. This technology is more flexible than DMU, and could operate within street rights-of-way. The change in plans being considered came about after the Special Transit Advisory Commission (STAC) and the area's Metropolitan Planning

Organizations (MPOs) held meetings to develop an overall system plan for the region (discussed further below). No decision has been made regarding whether this is a better approach, but the Light Rail Transit has been included in the Long-Range Transportation Plan adopted by the region's two Metropolitan Planning Organizations. Should this technology be adopted, the alignment of the rail could change. Instead of operating alongside the freight tracks, and roughly at that elevation, the Light Rail Transit has the potential to be located along Hillsborough or Morgan Streets. Such an alignment has implications for how the transit center is designed. Regardless of the technology, the area of the Boylan Wye will be a focal point due to the location of the intercity passenger station.

The location of the multi-modal facility is determined by the location of the intercity passenger rail services, under the assumption that this travel mode is an essential tenant of Union Station. The local/regional passenger rail, regardless of technology, will intersect with the intercity rail in the vicinity of the Boylan Wye. The intersection of these two rail services provides the critical nexus for the multi-modal facility.

Bus Services

Along with the passenger rail service, bus services are envisioned to be relocated to the area. The current Greyhound/Trailways terminal on Jones Street would be relocated to Union Station.

Local CAT bus services in the vicinity would be rerouted to serve Union Station and provide the collector/distributor function. Passengers arriving on the intercity or regional services,

Existing Greyhound Terminal

whether bus or rail, would connect to CAT to complete their journey within Raleigh. Besides the city services, a downtown circulator would connect at Union Station. This circulator could be a modification to the "R" Line bus circulator in the short-term, or long-term could be a streetcar service. The remaining bus services that do not operate near Union Station would continue to operate through the Moore Square Station Transit Mall. This location is in the heart of the employment area of downtown and provides a greater amount of destinations within walking distance.

Previous Multi-Modal Studies

Planning activity to formally consider a shared transportation facility began in 1995 as the City of Raleigh undertook a study and adopted the conclusion that there would be sufficient travel demand to warrant a Multi-Modal Transit Center (MTC) and selected the Boylan Wye area as a possible location. Support was confirmed for the multi-modal facility concept with the findings that combining the transportation modes into a central facility was possible and would aid passengers as they transferred between modes as well as provide the efficiency of a single facility to serve a variety of transportation systems. This initial study did not address the arrangement of the individual facilities or methods of accessing the terminals inside the triangle of freight tracks in the Boylan Wye.

A second study, completed in 2002, was jointly funded and prepared in coordination with the City of Raleigh, Triangle Transit, and NCDOT. The goal of this study was to recommend a preferred concept design and implementation strategy, but due to various reasons the goal was not fully realized. The resulting study identified three possible platform locations for the various service providers and developed two design scenarios to accommodate them within a shared facility: the Wye alternative and the Morgan/Hargett Street alternative. The scenarios provided for the physical space needs of the intercity rail passenger system and the proposed regional rail transit system, as well as the space needs for freight, intercity bus service, local transit systems, airport and other shuttle systems. The scenarios also illustrate how parking, concessions, access (pedestrian, bicycle, local transit, auto and rail), freight storage and handling, office and support space could all be accommodated within the facility. At the conclusion of the study, agreement was not reached on which of the two scenarios was preferable. The study was finalized keeping both scenarios recognizing that the information would be useful for future plan development when consensus was reached on a preferred location.

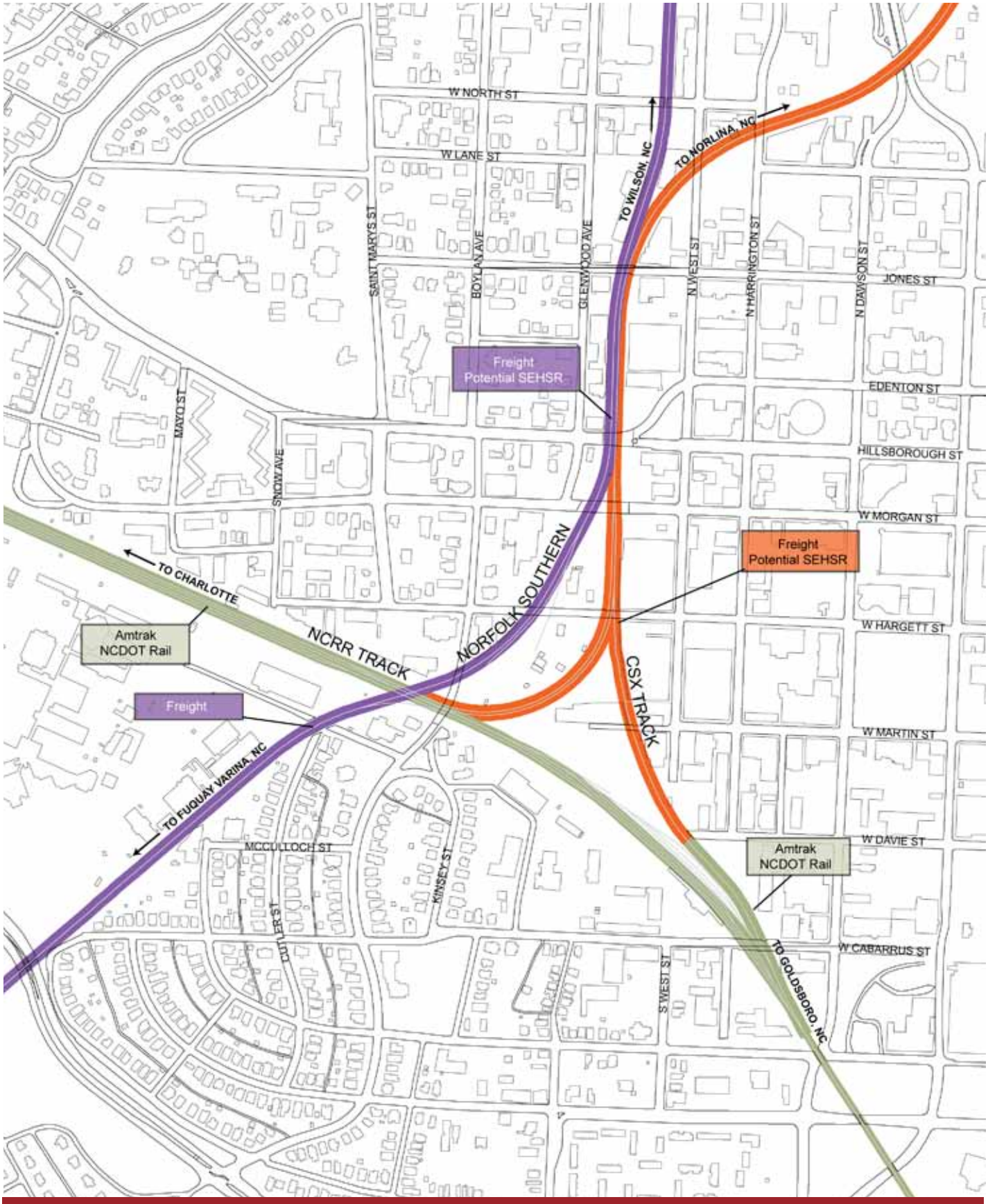
Significant changes have occurred since the completion of the 2002 study. First, market conditions influenced by the new Convention Center, increased downtown housing development, and the Fayetteville Street renaissance are more favorable to support a greater intensity of development in the vicinity of the Boylan Wye, leading to a need to rethink the land use strategy for adjacent lands.

Second, a dramatic increase in Amtrak ridership has resulted in the addition of rail service departures/arrivals from the existing station with future service additions in consideration. The recently presented NCRR Corridor Capacity Study identified the opportunity for commuter rail from Goldsboro to Greensboro and the CAMPO 2035 Long Range Transportation Plan includes a commuter rail from Clayton to Wake Forest. A study by NCRR to accommodate commuter rail service within the rail corridor and the completion of the Eastrans study with

its favorable findings in regards to potential commuter service feasibility have added new rail-based transit service potential to the mix.

Third, planning for Southeast High Speed Rail has further advanced where the 2002 study only lightly addressed the proposed service. This service opportunity is further strengthened by recently being identified as a priority project for Federal ARRA funding in 2010. Both Southeast High Speed Rail and commuter rail are significant components of the overall feasibility study for this current effort.

Finally, the uncertainty regarding Triangle Transit's rail project has opened a regional dialogue regarding the best way to implement rail-based transit within the Triangle region. A Special Transit Advisory Commission (STAC) was formed to consider the options and produced a report that recommended rail service by Diesel Multiple Units between Durham and North Raleigh. Light Rail Transit was the preferred technology, but was considered to not be permitted within the North Carolina Railroad (NCRR) corridor. After the Special Transit Advisory Commission made its recommendations, the North Carolina Railroad wrote a letter indicating Light Rail Transit may be feasible in the North Carolina Railroad corridor, so the Metropolitan Planning Organizations incorporated Light Rail Transit in the 2035 Long Range Transportation Plan instead of Diesel Multiple Units due to its flexibility, environmental benefits, ability to shape development, and to enable a single technology from north Raleigh all the way to Chapel Hill. One characteristic of Light Rail Transit is that it can be located within a street system which allows the opportunity to locate the track outside of the railroad Wye. As a result the platform locations, track locations, and operational details have been reconsidered so that the full range of potential services can be accommodated within the study area.



Track Ownership and Users

3.0 Concept

Grand Welcoming Space

In 1891, a new Union Station built on the west side of Nash Square offered railroad passengers a new rail service location in the heart of downtown Raleigh. One hundred and nineteen years later, a vision is being proposed to recapture the importance of vital transportation services to downtown Raleigh.

Like Grand Central Terminal and Penn Station in New York City, and the Union Stations in Washington DC, Boston and Chicago, Raleigh's new "Union Station" will serve as a gateway into Raleigh by offering access to the region, the state and the East Coast metropolitan areas. More importantly, the gateway will offer a sense of arrival into the City of Raleigh and a gateway to the South.

The first impression of a place plays a significant role in shaping opinions of that place and helps to inform its identity. The elements that help to create that sense of arrival are important to the facility design concept and include:

- Signature public spaces: impressive interior lobby and outdoor plaza areas
- Landmark architecture: to give prominence to the facility
- Destination retail: to serve passengers as well as the broader public

Multi-Modal Stations — Omaha Train Station, Cincinnati Union Terminal

Benefits of a Unified Multi-Modal Transit Station

The establishment of a multi-modal station will dramatically change the look and feel of the west side of downtown Raleigh. Currently a low-density collection of warehouses and vacant land, the Raleigh Union Station stands to change the economic development potential of the area. It can do so by increasing the level of activity on the west side through bringing in transit patrons from all travel modes. Creating a place where all modes come together will make it easier for patrons to switch among modes, thereby increasing transit ridership.

A successful multimodal station offers the following advantages:

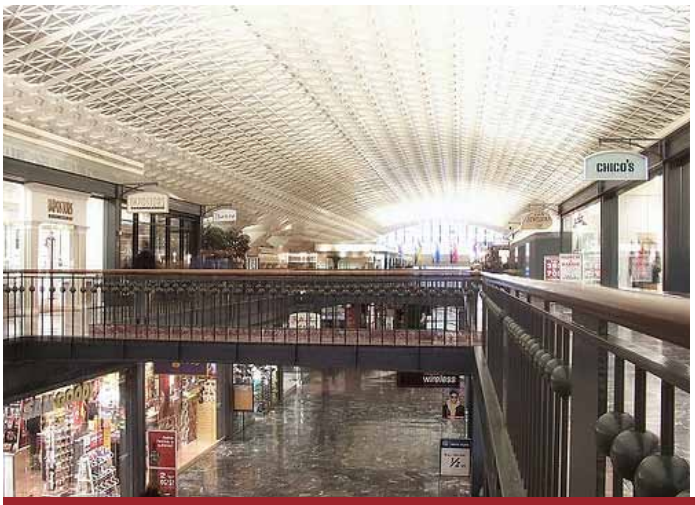
- **Increases transit use** – by creating an attractive space where users can conveniently transfer among modes, ridership on all modes will increase. Improving the passenger experience will increase the viability of transit as an option for more downtown employees and residents

- **Establishes a transit identity** – will be a focal point for transit service in Raleigh, increasing the ease for new and casual users to find transit and understand how to use the systems. The station itself becomes a critical component of a transit marketing campaign

- **Plans for future modes** – two major new transit modes are planned for Raleigh – the Southeast High Speed Rail (SEHSR) and Triangle Transit's regional rail system connecting downtown with north Raleigh and Durham. Union Station can foster both of these services by preserving space for their implementation and by creating a pleasant transit environment for riders.

- **Ties together western edge of downtown** – not only will the station connect the transit modes with one another, it will also connect the surrounding parcels with each other. A significant connection will be to tie together the City's major investment in a new convention center with the destination area of Glenwood South.

Multi-Modal Stations — Baltimore Penn Station, Chicago Union Station



Multi-Modal Stations — Union Station DC Interior, Greensboro NC Depot

- **Anchors downtown circulator** – will be the principal focal point for a downtown-based circulator system. This system can initially be a high-quality rubber tire circulator, but can transition to a traditional streetcar service. This circulator will knit together all destinations within downtown, and tie downtown to nearby locations, such as the Centennial Campus, Hillsborough Street corridor, and Dorothea Dix.

- **Creates a gateway destination** – by establishing an active, attractive space that serves more than transit users, the station becomes the western gateway into downtown. A "signature" building creates an identity for this side of downtown, with the transit function being one component piece of a larger, dynamic structure.

- **Maximizes developable space/parcels** – offers the potential to increase the amount of developable space by realigning the existing freight tracks to eliminate pockets of undevelopable land and create larger parcels.

- **Supports development** – by creating a destination space and opening up more area for development, the station will foster spillover development on nearby parcels. Through proper controls, this development can increase the current density and value of the area, while providing an appropriate sensitivity to adjacent residential areas. New Transit Oriented Development (TOD) will capitalize on the advantages of being located next to Union Station.

Modal Connections

Passenger Travel

Since at least 1991, when the Intermodal Surface Transportation Efficiency Act (ISTEA) was signed into law, federal transportation policy has sought to encourage intermodal passenger connections. As the Bureau of Transportation Statistics (BTS) notes in its special report on intermodalism, "The intermodal terminal is a key building block for developing connectivity because travelers can only transfer directly between modes if there is a place to do so." The vision for passenger travel in Raleigh is for Union Station to be that place.

In Raleigh, only limited interconnectedness is provided. All Capital Area Transit (CAT) downtown routes and all Triangle Transit Authority (Triangle Transit) downtown Raleigh regional bus routes connect well at the Moore Square Station, although this station is now over capacity, resulting in buses stacking up on Wilmington Street. All Amtrak trains stop at a single station on Cabarrus Street. All intercity bus services connect at the Greyhound terminal on Lane Street. These locations are all separate and not within an easy walk. A single terminal will overcome this separation.

Research conducted in other areas of the country suggests that providing connections within the same terminal can result in significant levels of intermodal transferring. A 2003 study for the I-95 Corridor Coalition found that at Amtrak locations at the non-home end of the trip, such as would be the case for downtown Raleigh, 20-25 percent of the trips used public transportation, and another 10 percent used taxis. At intercity bus stations, more than 10 percent of the travelers used public transit at the non-home end of their trip, with another 10 percent using taxis.

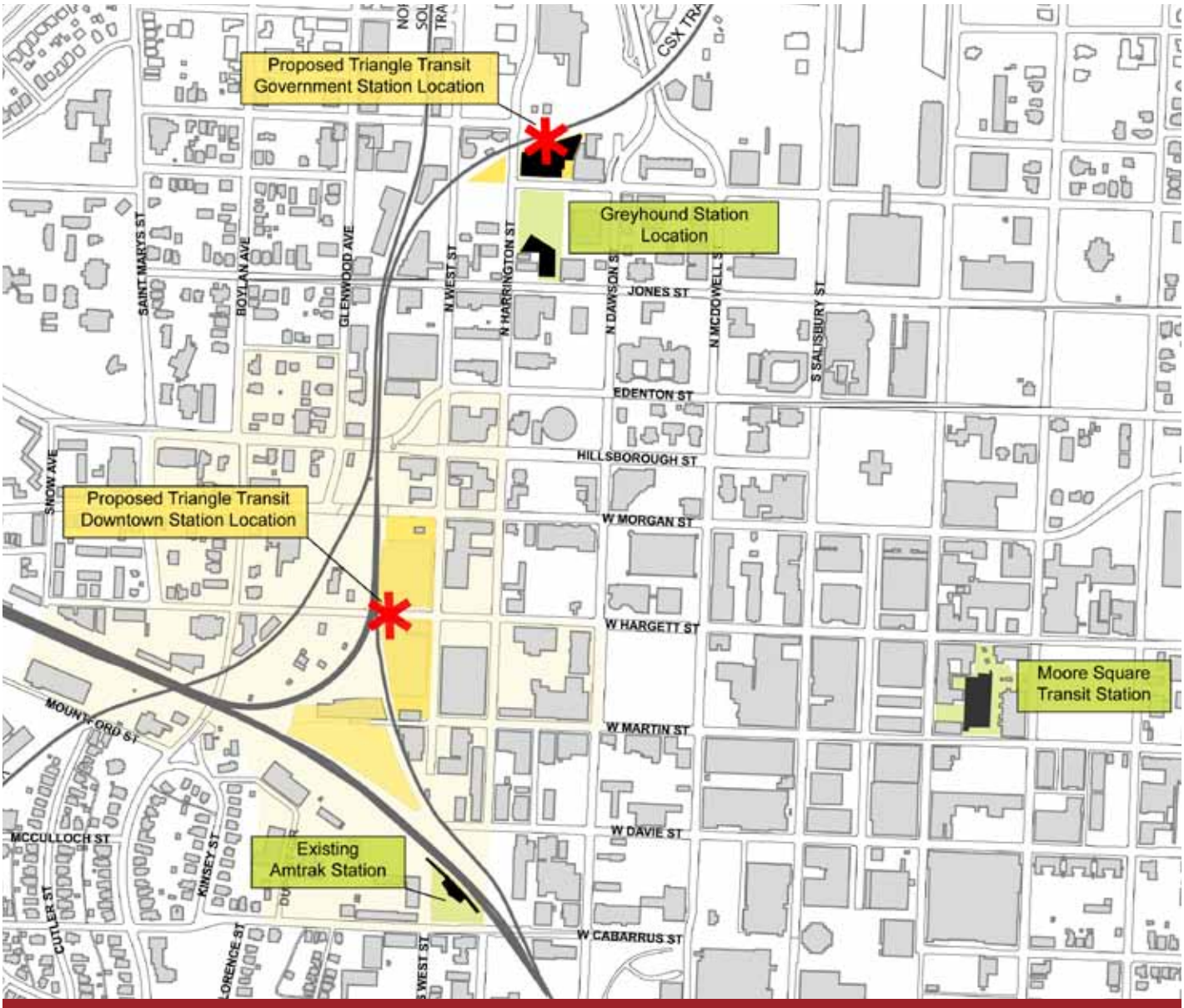
The implications for the Raleigh Union Station are that 20 percent of the passenger rail users could arrive/depart by public transit, 10 percent of the intercity bus passengers could arrive/depart by public transit, and 10 percent of both intercity rail and intercity bus passengers could arrive/depart by taxis. This accessibility is not available with the current separated terminals.

Two of the transit modes at Union Station are planning dramatic expansion in their passenger services. The vision for Union Station must accommodate these additional services by increasing the space devoted to passenger waiting and boarding, and the number of berthing locations for buses and trains. The Triangle Transit rail service will require additional trackage in the Union Station area.

The North Carolina Department of Transportation (NCDOT) Rail Division in coordination with Amtrak is planning for an expansion of its conventional rail service by offering additional trains between Raleigh and Charlotte. A third daily round trip will be added during the spring of 2010. Additional conventional intercity services are being studied that could connect Raleigh with Wilmington and with Asheville. Besides the conventional services, the SEHSR will increase the number of trains operating between Raleigh and Charlotte and between Raleigh and Washington, DC. The service to Washington will require the reactivation of the "S" Line corridor, which is the eastern edge of the Boylan Wye. The SEHSR is anticipated to open for service by 2017.

Commuter rail service, using locomotive-powered passenger cars, may also be implemented, either as an interim phase or as a long-term service. The commuter rail potentially could operate from as far as Goldsboro to Burlington. In 2008, the NCRR studied what capacity improvements would be required to their trackage if Triangle Transit or another agency wanted to implement this service. In 2009, NCRR began a follow-up study to develop ridership estimates for the service options.

Triangle Transit is anticipating a substantial increase in its transit services. A visioning exercise has recently been completed and its long-range plans call for regional bus services to connect Raleigh with Franklinton, Zebulon, Selma/Smithfield, and Fuquay-Varina, and regional rail service between Raleigh, Durham, and Chapel Hill. Triangle Transit has already begun implementing this vision with new express services to Wake Forest, Zebulon/Wendell and Knightdale.



Existing Downtown Transportation Facilities

Freight

As the major owner and user of the Boylan Wye area, and as the ultimate controlling organizations, the needs of the freight railroads must be accommodated in any scheme.

The vision for the freight elements is to maintain and improve the efficient movement of freight trains through the area. Included in this vision are maintaining the existing connections among the three freight railroads – North Carolina Railroad (NCRR), Norfolk Southern Railway (NS), and CSX Transportation (CSX). Additional freight capacity is needed in the Wye to provide for anticipated growth in freight demand. This capacity increase can be provided through improved signalization, track realignment to increase speeds and efficiency, and in some instances, additional freight tracks.

The needs of freight must be accommodated in any scheme

Platform Locations – Controlling Criterion

The controlling criterion for the location of Union Station is the location of the boarding platforms for the train services. Train boarding platforms are controlled by engineering considerations, the need to meet ADA accessibility requirements, and the need to not interfere with freight train operations. By adjusting the layout of the tracks in the area, new station platforms can be located on two sides of the Wye that provide close connections to the other modes, are located on tangent tracks near downtown, and will not interfere with freight operations.

Engineering considerations must take into account the physical requirements of trains. In the Boylan Wye, these requirements primarily relate to the curvature of the track and the clearance required over tracks. To meet ADA requirements, as currently promulgated by the Federal Railroad Administration, the platforms must be located on tangent (straight) track and the platforms may need to be raised to permit level boarding. Tangent track is preferred to permit safe boarding due to the gap created between the passenger car and platform when curves greater than 2 degrees are present.

There is no single location where all envisioned trains share a common set of tangent tracks. Trains are planned to travel between the north and west legs; the north and southeast legs; the southeast and west legs, and on the southwest leg of the Wye. As a result, all sides of the Wye have the potential for some passenger trains, and the location of the platforms and Union Station will require some compromises.

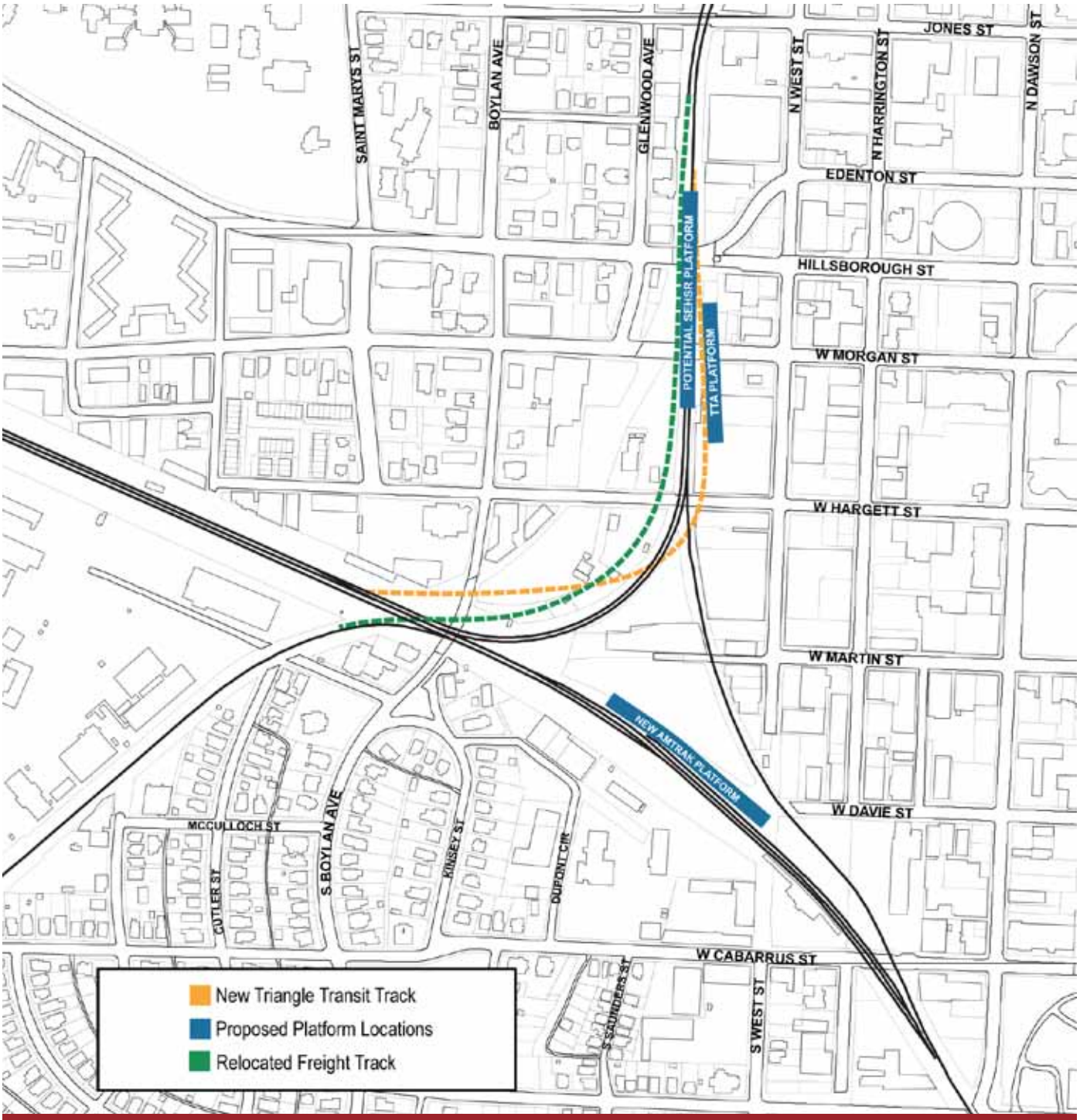
The two legs of the Wye that can serve the greatest number of trains are the northern and western legs. The northern leg will serve more if all trains are implemented. The northern leg is also closer to the downtown development, while the western leg is closer to the State penitentiary and has limited access. For these two reasons, the northern leg is the preferred location for the station platforms. This location will serve all trains except for trains traveling between the west and southeast legs, or the southeast and southwest legs. These trains can only access a platform on the south side of the Wye, in the general vicinity of the current Amtrak station.

Based upon current operating plans, only one train falls into this latter category. The Carolinian currently operates there and is envisioned to continue to connect Selma with Cary via Raleigh. As a result, it cannot access a platform on the northern leg. Should a commuter rail service be implemented that connects Clayton/Garner with NC State/RDU/RTP, it would also be located on this side of the Wye.

Shown on the following graphic are dual platforms for the Southeast High Speed Rail (SEHSR); Triangle Transit's platform along their alignment between north Raleigh, NC State, and points west; and a relocated Amtrak station. The two SEHSR platforms have been moved as far south as possible without violating the ADA restriction. These platforms will also serve the relocated Silver Star and the Piedmont trains. The graphic shows a potential southernmost location for the Triangle Transit platform. The Amtrak Carolinian platform has been relocated about 650 feet north and west from the current Amtrak station. This relocation brings this platform as close as possible to the other platforms in order to minimize the connecting distance.

With the rail platforms located as indicated, the location of Union Station midway between the platforms is the block bounded by West Morgan Street, West Hargett Street, South West Street, and the railroad. This block and others have been purchased by Triangle Transit as part of its previous regional rail plan.

The block is approximately a 1,000-foot straight line distance from the center of the block to the Carolinian platform, and another 750 feet from the center of the block to the center of the northernmost SEHSR platform. These distances are about the same as a block and a half to two block walk in downtown. The burden of traveling between platforms can be lessened by providing a shuttle or moving sidewalks and by providing diversions along



Relocated Freight Tracks Showing New Passenger Platforms

The two legs of the Wye that can serve the greatest number of trains are the northern and western legs.

the way. Moving sidewalks are desirable when walking distances exceed 1,000 feet. The acceptable walking distance increases to 2,000-3,000 feet with moving sidewalks.

These platform locations are predicated on the currently adopted Triangle Transit rail plans. Should these plans change to the LRT technology, significant changes will occur to the layout of Union Station, but the preferred location will not change. The likely alignment for the LRT is one of three corridors – the current railroad alignment, or, to allow for a grade-separated crossing of the freight lines, in-street operation over either the Morgan Street or the Hillsborough Street bridge. If the alignment is along Morgan Street, the LRT will pass by the front door of Union Station, and a platform can easily be provided in this area. If the alignment is along Hillsborough Street, the LRT will need to operate to the south end of downtown in order to provide access to the major concentration of office buildings. One potential routing would be to bring the LRT south along West Street, which would place the LRT alongside Union Station. In any case, the identified blocks work well with a change in technology.

Downtown Raleigh and Boylan Wye Area

Light Rail Alternative on Morgan Street

If a light rail alignment is along Morgan Street, it will pass by the front door of Union Station, and a platform can easily be provided in this area.

Union Station Concept

The concept proposed for the Raleigh Union Station is based upon the provision of a central lobby similar to the arrangement accomplished at Union Station in Washington, DC. The central lobby space serves not only as a grand public space, but also contains ticketing, waiting, and retail opportunities. Off of the lobby concourses lead to multiple gates and different travel modes – one for intercity rail, one for intercity bus, and one for local/regional rail. Pick-up and drop-off activity occurs at the front door of the station. Here is where taxis, circulators, and private vehicles would be able to connect with their travelers. Parking access is provided nearby, with easy access for automobiles from the lobby entrance, and with an enclosed pedestrian connection from the parking deck into the lobby space.

The concourse arrangement works well with the need to provide dual boarding locations for Amtrak. One concourse will lead to one set of platforms shared with the SEHSR, and another concourse will lead to the southern Amtrak platform. Smaller departure lounges can be provided along the concourses if preferred by the operators. Security can be established either at the "gate" location, or at the entrance to the concourse, depending upon the needs of the modes.

Boston South Street Station Central Lobby and Retail Arcade

Public access to the intercity rail modes will be through the main lobby. Access for intercity buses will be through the main lobby, with a secondary entrance directly to this mode. This secondary entrance will be the primary entrance for the package express service. Local and regional bus and rail services can be accessed through the central lobby, or directly from the street to the boarding platform. Security is less of an issue for these modes, which permits the direct platform access. Travelers on these modes are more likely to know where they are going since they are frequent users, and less likely to need the amenities provided in the central lobby.

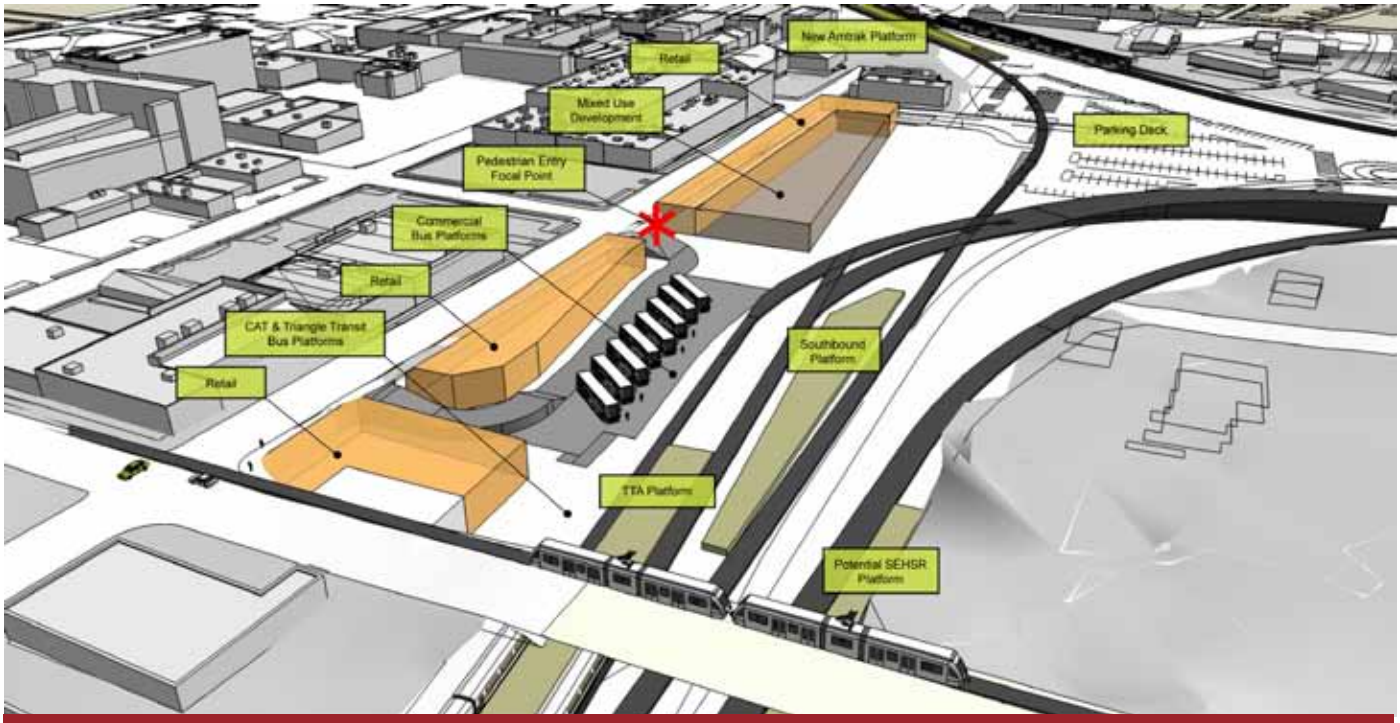
Union Station Site Plan — Ground Level

Parking is accessible from West Street. The parking deck will have over 1000 spaces divided between short-term parkers, and day/overnight parkers. The parking deck might be located within the interior of the Boylan Wye. This land is undesirable from a development perspective since it is surrounded by freight tracks, but might work well for parking with a grade-separated entrance. The parking deck could be covered with a green roof for passive or active recreation, echoing the squares in the Christmas Plan for downtown. Should the Triangle Transit plans change to have LRT on either Morgan or Hillsborough, the freight tracks can be realigned to allow the parking deck to be located in the same area, but on the downtown side of the tracks rather than in the middle. In either case, an enclosed pedestrian walkway connects the parking deck to the central lobby.

The central lobby is the focal point for the Raleigh Union Station. It will tie together all modes, and serve as the principal waiting area. Ticket counters are provided around the lobby, with staff space located behind. Retail services will be arrayed around the lobby space to take advantage of the concentration of passengers. Information displays will inform riders of when their bus or train will be departing, and when they should proceed to their boarding area. Public space, for art displays, public activities such as healthy markets, or meeting areas will be provided. By focusing the passenger activity in the central lobby, more retail space can be supported than is possible with the current dispersed activity. Ease of access and visibility from the outside will encourage other patrons from the surrounding area to come into the lobby for lunch and other shopping. This arrangement works well at Boston's South Station, where the station lobby functions as a gathering space for nearby office workers and residents.

The central lobby is the focal point for the Raleigh Union Station.

Union Station Site Plan — Second Level Level



Union Station Ground Level showing Light Rail Alternative on Morgan Street

Off of the lobby concourses lead to multiple gates and different travel modes – one for intercity rail, one for intercity bus, and one for local/regional rail.

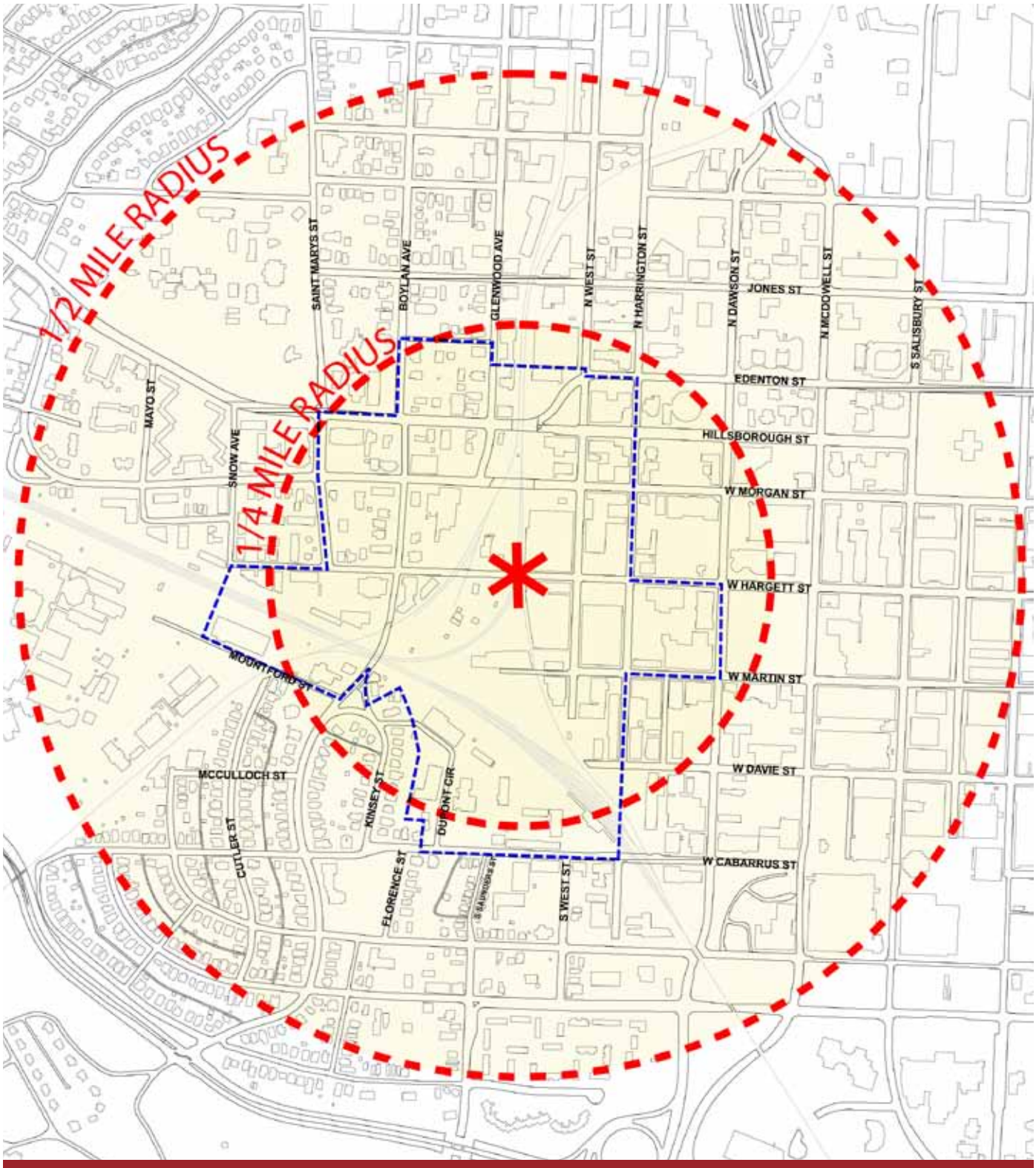
Union Station Second Level Level

Connections to Surrounding Areas

In order to be successful, the Raleigh Union Station must have easy and convenient connections to its surroundings. The connections should include the pedestrian and bicycle modes in addition to connections through transit services.

The location of the Boylan Wye, on the edge of downtown, presents challenges for integrating it into the downtown fabric. At the most basic level, the area within one quarter-mile is generally considered to be within walking distance (about a five-minute walk) and is the area where the greatest influence on land-use can occur. The adjacent photo shows the quarter-mile distance from the center of the Wye. As shown, the quarter-mile distance is the distance to Nash Square, West Edenton Street, and West Cabarrus Street. Within this area is the entire Depot District, the portion of the Boylan Heights neighborhood north of the railroad, and a few blocks of this neighborhood directly south of the railroad. Just outside of this distance are the Municipal Building and the new convention center. If an inviting pedestrian environment is provided, these destinations could be within walking distance for some users. One challenge will be for the Boylan Heights residents south of the Wye; currently they do not have walk access to the station except by walking out of the way to either Boylan Avenue or Dawson Street. For all practical purposes, this area is not accessible from Union Station, unless a new roadway/bikeway/pedestrian connection is provided. The City is considering providing such a connection by extending West Street south from Union Station to connect with South Saunders Street.

...some transit patrons will walk a half-mile to get to high qualilty transit service if the walk is along a pleasant path



Half-Mile Walkable Radius & Quarter-Mile Development Focus around Proposed Multi-Modal Center

Most of the downtown office district, however, is beyond this desirable walking distance. At the outer limit, some transit patrons will walk a half-mile to get to high quality transit service, if the walk is along a pleasant path. The half-mile radius (a 10-minute walk) is shown adjacent. This radius extends to Fayetteville Street, West North Street, and Western Boulevard. Within this area are the Wachovia and BB&T buildings, all of Boylan Heights, the State Penitentiary, St. Mary's School, and about half of the Glenwood South area. Just outside this boundary are the new Progress Energy and RBC Center buildings, and the majority of the State office buildings. Along the southern edge of this circle is the Rocky Branch Trail, part of the Capital City Greenway system. This greenway extends to the edge of the NC State campus on the west, and is planned to connect to the Walnut Creek Trail on the east. A bike connection to this trail would provide an easy commute for bicyclists to NC State. The extension of West Street under consideration could be a way to provide this connection since it would be grade-separated from the railroad.

Amenities for bicyclists should be provided at Union Station. At a minimum, bicycle parking should be provided. At the outer end, a bicycle "station" could be provided that offers bicycle rental, storage, repairs, and a place to shower. Several cities are experimenting with this, usually through leasing space to a private operator. Memberships are usually sold, especially to gain access to any shower facilities. Washington, DC just opened in October 2009 a $4 million, 1,600 square foot bike station at Union Station. It is operated by a private company which operates seven similar facilities in California, and another facility in Seattle.

Frequent transit service will be required to connect Union Station to many major destinations, including private office buildings, the State office complex, all of Glenwood South, NC State, and the Dorothea Dix campus. To be considered convenient, this circulator service would need to be offered more frequently than every 10 minutes. Otherwise riders could spend as long waiting for a transit vehicle as it would take to walk the distance. The technology for this circulator could be a high-quality bus-based system, such as the R-Line, or a streetcar technology, such as being considered for the Winston-Salem and Charlotte downtowns.

4.0 Development Strategy

Union Station and Surrounding Area Development Strategy

While the future Union Station is envisioned as a facilitator and connector of multiple modes of transit in central Raleigh, as a major public facility in a strategic location it also will influence development in the surrounding area. Conversely, development of the surrounding area will have a great impact on the success of Union Station and its role in fostering the further growth of downtown. With this in mind, one task of this study is to craft a vision or strategy for development in the vicinity of the proposed Union Station. This vision is not intended to be a comprehensive small area plan, but rather to define a more general framework for development within the area. To define this vision, existing land use planning and development trends along with market characteristics were used to identify broad use and density parameters. These factors were combined with an analysis of the connectivity patterns that result from the transit facility design to identify development sites and opportunities. The final strategy was further informed by input received through the outreach process. The planning and zoning as well as market analyses are included in the appendices.

Following is an overview of the proposed development pattern. The concept is discussed in general and then block-by-block recommendations are made. Discussions of pedestrian and vehicle connectivity as well as relative comments from the Call for Ideas (CFI) process are also included. The development strategy outlined below is a long term strategy. The development horizon should be thought of in a similar context as the Comprehensive Plan (20 years).

The strategy is not intended to supplant existing planning for the Downtown West Gateway Area Plan contained in the City's Comprehensive Plan, nor is intended to replace other planning for the area such as discussions for the proposed Depot local historic district. Rather, this strategy is intended to supplement those documents and its creation was informed by those and other existing planning efforts. Despite the block-by-block descriptions and some elements that appear overtly specific, it is important to re-emphasize that the framework is intended to be used a general envelope within which suitable development might occur. It is purposely not prescriptive in nature, but rather broadly descriptive. The goal is for

Old Fayetteville Street, Raleigh

proportions, while leaving flexibility that can foster innovation by the private development community and allow development to respond to changes over the necessarily long term implementation period. Implementation of the recommendations in this strategy will require future Comprehensive Plan amendments and new zoning for the study area.

Two Views of Recent Downtown Development — Aerial view, New Condominiums on Hargett Street

Land Use Trends and Opportunities

The project area stretches west from the city's central business district (CBD) and government core and encompasses most of the area known as the "warehouse district" as well as the railroad "Wye". Historically, the area has had more of an industrial pattern in keeping with its railway adjacency. Over time, this pattern has been changing as commercial uses have back-filled industrial buildings and land, linking the area to the business and government center as opposed to its industrial past. While the industrial form still predominates, many of these buildings are unused or under-utilized. Restaurants, retail shops, professional services offices and other commercial uses have begun to take over alongside the remaining industrial operations and vacant buildings. A number of these new uses reflect the "new" economy of the Research Triangle area focusing on communications, creative and research oriented businesses. Residential uses (generally new construction) have also started to move into the area, particularly in the northern portion of the project area, displacing surface parking. This is due in part to the emergence of Glenwood South as an urban residential neighborhood with successful restaurant/entertainment development. The presence of strong turn-of-the-century neighborhoods immediately west of the area also contributes to the strength of residential emergence in this area.

Union Station itself will be a major shaper of new development patterns. The development potential is also shaped by the districts that surround the project area. Glenwood South is immediately north of the project area. This area has emerged as a downtown neighborhood with mid-rise residential development complemented by eating and drinking establishments and some office space. While

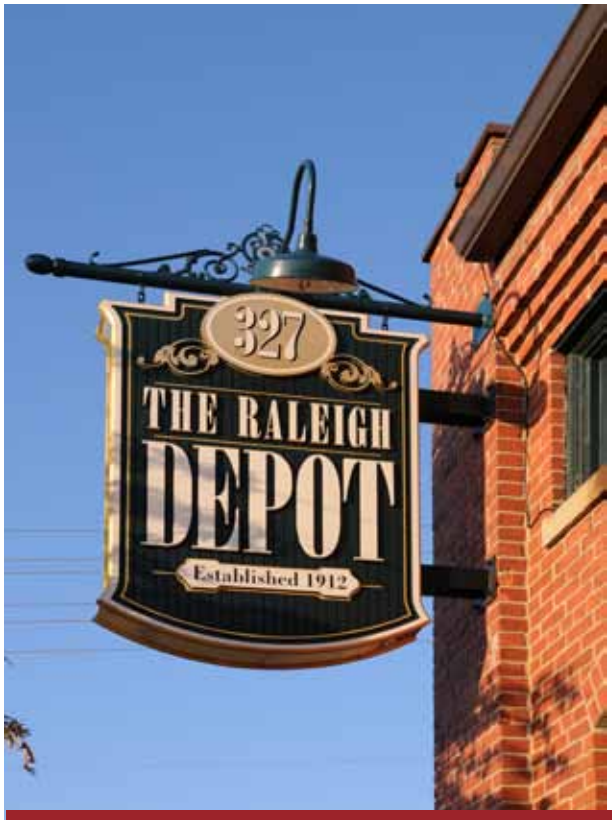
close to the downtown core, Glenwood South suffers from poor connectivity to the central business district. Immediately east of the site lies the downtown office core. This area has seen substantial development in recent years. When combined with the government office center northeast of the project area, it creates a major regional employment center that is located in close proximity to the proposed Union Station. The new convention center and the performing arts center are located south and east of the site and also define a major activity center. The Boylan Heights neighborhood to the south and west of the project area is a lower density (predominantly single-family detached) residential district with a unique historic character that is designated a local historic district. While this neighborhood wishes to preserve its scale and historic feel, there is also a desire to continue to foster continued connections to the downtown core and Glenwood South. The surrounding development pattern needs to address the unique status of this neighborhood by ensuring that the connection between the neighborhood and downtown is strengthened without introducing extra intensity to the neighborhood.

While the uses and character of the areas immediately surrounding the project area will provide the most immediate impact on redevelopment, it is also important to look at the overall land use dynamics. Starting with retail, while there exists a large supply of existing retail space and certain retail segments such as food/beverage/entertainment are well represented, other segments such as convenience items and comparison goods have real and perceived shortages. Specifically, the City identified $32 million in unmet retail demand in 2007 based on a gap analysis. This gap persists due to the fragmented nature of downtown retail, the obsolete nature of much of the existing space, the fact that demand

Raleigh Convention Center

is diffused throughout the downtown rather than concentrated in a single location, and the "first mover" conundrum whereby retailers are reluctant to pioneer an unproven area. The project area has the potential to address the unmet and future demand by providing a location where a concentrated amount of modern retail space could be provided in a high-traffic location. In doing so it would serve the existing downtown residential and worker base, while also serving as a draw in and of itself to downtown for new residents and visitors. In addition to the need for more retailers in the downtown area, opportunities for other commercial development with high employment densities are needed in order to continue to solidify the downtown's role as a major employment center.

The downtown core contains a significant supply of traditional high-rise office developments. As prime sites in the core are developed, additional growth in office and other commercial uses with high employment densities will need to happen elsewhere in the downtown. The current use and density pattern for the area of downtown east of the core is for lower scale development. Therefore, the project area provides the best opportunity for larger scale development. It should be noted that due to the presence of the nearby lower density residential areas and the unique nature of the historic Depot District, the project area should not be developed entirely at such higher densities. It is important that the development



Depot District Sign, Boylan Heights Neighborhood

pattern provide a transition to the lower densities in the nearby residential areas, specifically Boylan Heights. The area should also provide a transition to the Glenwood South area and connect that area to the downtown core. This suggested mix of densities and forms mean that in addition to potentially adding raw square footage to the downtown office supply, the project area also provides an opportunity to create additional types of commercial development of a different character than the traditional office tower. The

project area's ability to accommodate such forms as loft office and flex space (including a variety of commercial types as well as residential uses in live/work arrangements) in low-, mid- and high-rise developments is a strength that should be seized upon.

The success of the Convention Center has revealed a shortage of hotel rooms in downtown Raleigh sufficient to accommodate the large influxes of out-of-town visitors. At least four large downtown hotel projects have been stalled or cancelled due to the unavailability of financing in the real estate downturn. Once market conditions improve, hotel would be a natural fit in the area due to the transportation connectivity and proximity to the Convention Center, provided the demand is not absorbed elsewhere in downtown.

One final opportunity the area provides should be noted. A shortage (especially when compared to the full build out of downtown) of recreational open space, both active and passive, has been noted. The unique nature of the project area with variations in elevation and potentially a large area remaining in between rail lines could provide an opportunity to develop a major recreational facility and a signature public space. Such a facility could include indoor and outdoor as well as active and passive elements.

A confluence of geographic location and land use needs have determined that Union Station and its surrounding area have a unique opportunity to be a major catalyst for the further development of downtown Raleigh as the center of its region and as a truly national city. From a geographic standpoint, the Union Station project area falls neatly in between major downtown activity centers. If properly developed, the area could play a pivotal role in tying these areas together and creating a cohesive downtown where all areas are accessible to each other. This increased cohesiveness would contribute to the overall success of

Nash Square

downtown. Additionally, the suitability of the area for providing a mixture of development types and scales give it the ability to add needed supplies of retail and serve as an expansion of the downtown core's employment center.

Successful development of this area will also help tie Union Station itself into all of these major activity and economic centers helping ensure maximum ridership and furthering the creation of an active, sustainable and leading downtown. All of these factors will allow the whole of downtown to achieve the needed mass and diversity of development to continue on its path of becoming the economic and activity center of the metropolitan area and indeed more firmly establish the triangle as a leading metropolis in the nation.

Public Input

As noted in the introduction to this report, the analysis included use of a Call for Ideas (CFI) process as a method to solicit early public input. The CFI was sent directly to numerous stakeholders and published on the City of Raleigh's website. The CFI received press coverage, which drew further attention to the effort. By the final tally, 23 direct responses were received. The respondents included private citizens, a neighborhood organization and professional firms. The responses varied from a short paragraph to more lengthy submissions which included graphics. Some responses were very comprehensive, describing the look, feel and functioning of multi-modal station and its surrounding neighborhood. More succinct replies may have expressed one idea or raised one issue. The great majority of the responses were enthusiastic and supportive of the general concept of a Union Station, however; a few issues and concerns were raised and one respondent raised significant opposition.

A vision for a Union Station that would respond to the general content and character of the responses is one that is ambitious and comprehensive. Such a vision can be briefly summed up by the following statements:

- **More than a Transit Center**: A transit hub should be part of a **vibrant, mixed use development** that has a very strong **retail** component, providing **convenient goods and services**. Development should be of such a scale that the station (and surrounding area) is a **destination** complementary to, but also apart from, its transit function. It should have **iconic or signature design** that enhances Raleigh's image. Its design and mixed use nature should help create a **sense of place** in the western gateway to downtown.

- **Connections**: On a basic level, the station should efficiently **connect transit modes**, allowing for orderly transfers. Beyond this, it should be connected to other downtown neighborhoods (Glenwood South, Convention Center, Boylan Heights etc.) by **improved pedestrian facilities** and an **orderly traffic flow**.

- **Well Run Facility**: Union Station should be **safe, clean, orderly and well maintained**.

While these main points illustrate the general positive and ambitious nature of the responses, it is important to note that there are areas where opinion is divided or unclear. In structuring the final concept, these ideas will have to be addressed, keeping in mind the broader more positive goals noted above. These issues are:

- **Urban Design and Scale**: The transit center will have to be designed so that it interfaces well with adjacent areas. Residents of Boylan Heights in particular are concerned about **height and view corridors** as well as about **increased levels of activity** that may result from dense development. Union Station will need to be designed so that it visually "works" with the surrounding neighborhood and so that the activity that it creates will not be overly disruptive to adjacent areas. Union Station needs to be a "good neighbor".

- **Parking Supply**: Respondents were divided as to whether the concern was **too much or too little** parking. The final concept will have to provide a rationale for the level of parking provided. Parking must be shown to be necessary to the level of development recommended and must be shown to be able to be managed in an orderly manner.

- **Process**: In planning for a transit hub, the City of Raleigh should have an **inclusive** process that reaches out to all **stakeholders**.

The Call for Ideas, as released to the public along with a more detailed summary of the responses is included with the appendices.

Union Station should be part of a **vibrant, mixed use development** that

has a very strong **retail** component,

providing **convenient goods and services**.

Proposed Study Area Development Strategy

Proposed Study Area Development with Future Development above Union Station

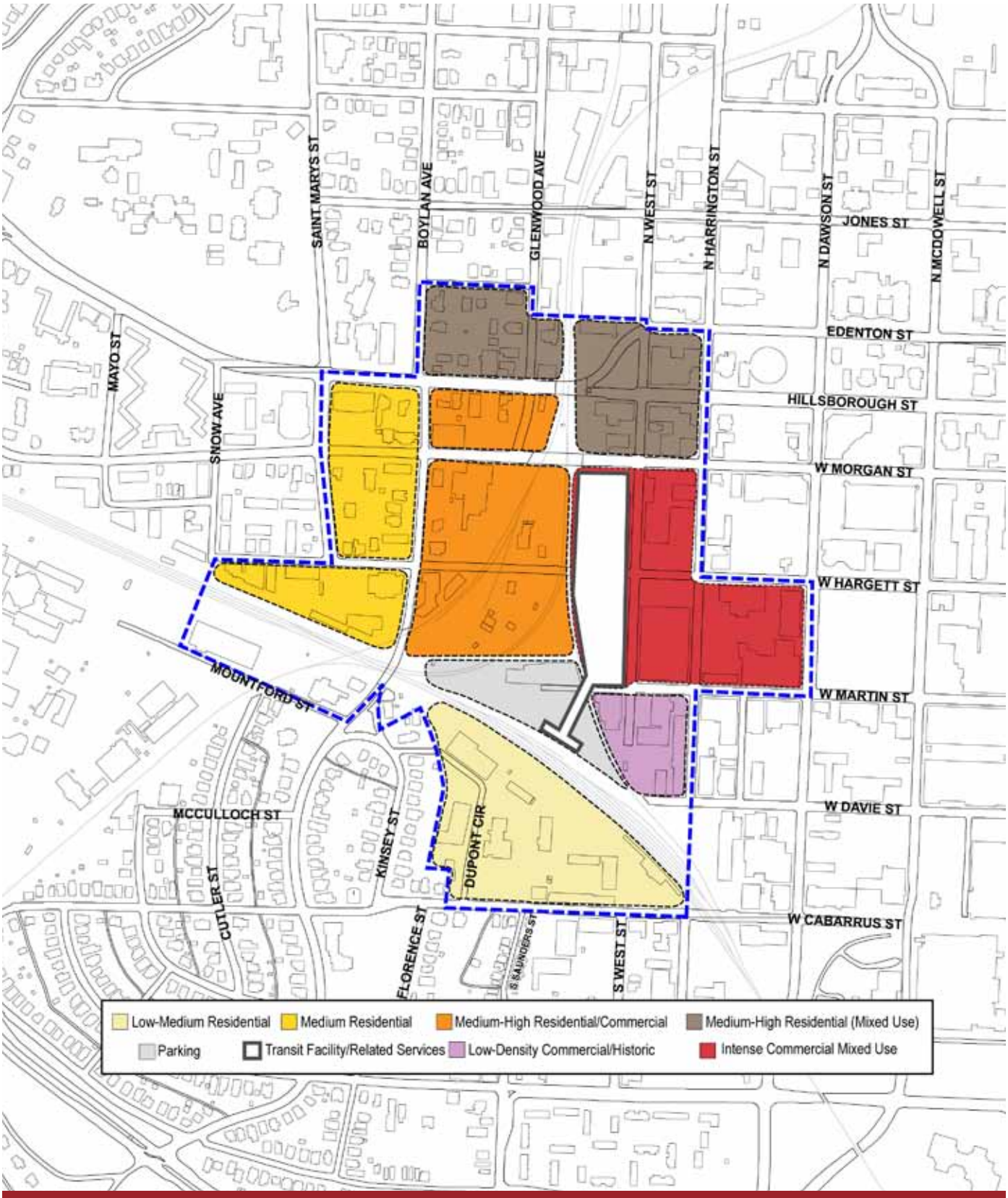
Overall Development Concept and Framework

Taking into account the previously referenced analysis and input received, the development concept is presented in the form of a "Frame of Reference." A Frame of Reference is a development framework (FoR, hereafter referred to as "the development framework" or simply "framework"). The framework addresses building forms, uses and patterns and is devised to appeal to the interest of the real estate development and investor community while still incorporating the dynamics, desires and conditions envisioned by the project team (City of Raleigh, North Carolina DOT, HDR) and the community. The framework addresses physical form (i.e., scale and massing) as well as land use and density, while providing a minimum-maximum range of square footage and/or unit counts for each acceptable, possible use.

In short, the framework offers flexible guidance that addresses what should be generally "allowed" and "not allowed." It provides a guide for physical form, land use and density, and allows developers to be creative within a visionary framework in combination with compatible and novel ideas of their own. The framework is not intended to be a comprehensive "small area plan". It does not seek to provide overly specific guidance as to the precise locations of precise amounts of various land uses. Rather, the framework provides as concise of a view as is practical of the most important factors regarding use mix, density, height and other factors. It takes an approach that places value on general guidance within which the development community can work and provide innovation as opposed to developing a highly prescriptive approach that narrowly defines the path towards development. If it is determined that a highly prescriptive small area plan (or regulating plan, to be implemented through a form-based approach) is desired at a later date, then this framework can function as a starting point and foundation for additional discussions and analyses with the community that can be used to provide the additional level of precision.

On the subject of the real estate market, it is important to note that the framework was drafted with input from a real estate market assessment (included in the appendices); however, the use and density parameters within the framework were not dictated by the market assessment. Rather, the market assessment was seen as a starting point for deriving the parameters and later as a basic "reality check" for the recommended parameters. This framework covers a large area and is long term (generally concurrent with the Comprehensive Plan's 20 year timeframe) in nature and is intended to encapsulate the community's vision over that term. Accordingly, adhering narrowly to current market indicators could preclude realization of opportunities to provide desirable outcomes.

The general development concept for the project area is to develop the Triangle Transit owned properties (generally the two blocks bound by West Morgan Street, South West Street, West Martin Street and the rail tracks as well as a portion of the "Wye" interior) as a new Union Station that will provide multi-modal transit services and also include a significant amount of mixed-use development within the development on these properties. The strategy also seeks to surround Union Station with additional mixed use development of sufficient quantity to contribute significantly to the vitality and success of the station and the downtown as a whole. The level of surrounding development should be enough in and of itself to contribute to an overall "sense of place" in the Downtown West Gateway

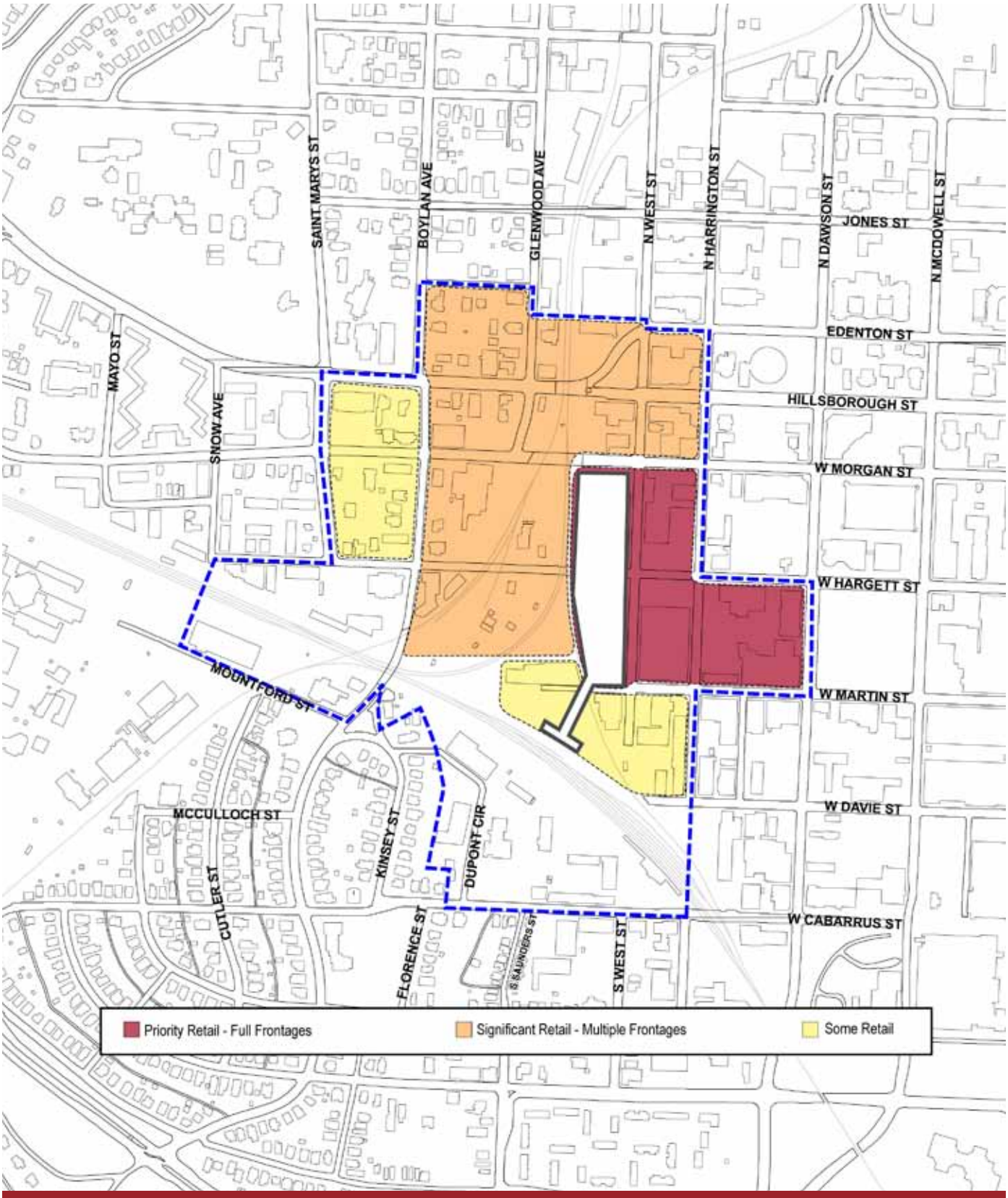


Use and Density Patterns

neighborhood that bridges the gap between the Glenwood South, Fayetteville Street and Convention Center areas.

The greatest height and bulk should be generally concentrated in the blocks between Hargett and Morgan, east of the rail tracks. This includes the two main Triangle Transit properties as well as the few blocks to the east. Development in this area should be predominantly commercial. Height should decrease south of Hargett approaching the historic Depot District. North of Morgan, intensity should be consistent with new development in Glenwood South, with the taller buildings located on Hillsborough Street. Height should also ramp down heading west of the railroad tracks from the station core/Triangle Transit properties. Development in this area, including the interior of the Wye, which is closer to the rail line and Union Station, should be predominantly commercial, with residential uses becoming more prominent as development spreads to the west across the Wye and beyond Boylan Avenue. Skyline views from the Boylan Bridge and surrounding neighborhood would be preserved, recognizing that station area development itself will become a part of the skyline.

The area should be truly mixed use. The overall proposed mix approximates a 50/50 use mix, with commercial development concentrated in the core and residential development more prevalent to the north and west. Approximately 10 percent of commercial development is proposed for retail uses. This equates to strong retail frontage along identified retail streets along with an additional retail concentration in and/or adjacent to Union Station. The total amount of prescribed retail would be a significant addition to downtown and would fill a major need within the area.



Retail Patterns

Mixed-Use Areas would light up Raleigh's night life

Development Pattern: Sites, Uses, and Densities

With the above in mind, the development "hub" within the project area should be the block between Hargett, Morgan, West and the rail tracks as generally reflected in the Downtown West Gateway Area Plan. This block should have intense development on both sides of the street and include the major pedestrian entrances to Union Station from the east (Central Business District) and north (Glenwood South). While development will be mixed use, the major emphasis should be on commercial development.

Development intensity and height should taper from the "epicenter" to the north, west and south. To the north and west the emphasis should shift from commercial to residential development. To the south, development should remain primarily commercial; however height and density should taper significantly approaching the historic Depot District. Height and density tapers from north to south and east to west should be achieved in such a manner as to preserve and enhance skyline views from Boylan Heights and the Boylan Bridge.

Intense development adjacent to the Union Station should create focus and activity. Public spaces should be created near the two main pedestrian entrances to the facility, along West Street and the Glenwood Avenue/Morgan Street intersection. Union Station should be knit into the development; providing easy access between transit and surrounding development.

The retail pattern should follow the suggestions of the Downtown Framework of the Comprehensive Plan, placing retail on priority streets. Additional retail should occur within Union Station and immediately adjacent in order to create “critical mass”.

The following presents a more detailed look at the development framework for the project area. The recommendations below will not be used for site plan or rezoning review. Implementation of height and density recommendations will require comprehensive plan and/or zoning map amendments.

Development Patterns and Block Area Key Map

Union Station Core/Triangle Transit Properties

A. Union Station North and South Blocks

1) **Planning Vision/General Strategy:** These blocks will form the core of Union Station. They will house the majority of train services, bus services and contain the main lobby and service areas of the facility.
Some platforms will be remote from the building itself, but be joined by walkway structures. Buses will operate along the adjacent streets with access to the main lobby which is on the second level of the facility from Morgan Street and access to the first level from West Street. Private vehicles should be able to access the site from multiple points, preferably from Martin Street and from Morgan Street. Any direct streetcar access should occur along West Street and potentially near the intersection of Glenwood Avenue and Morgan Street.

   In addition to the actual transit functions, these sites will house significant development and should contribute to making the Union Station area a major activity hub beyond its substantial role as a transit center. Development should be substantial and iconic in nature. While height is not a necessity for achieving an iconic building, it should be considered. This site, along with Block Cluster 2 to the east (see below) should achieve the highest densities in the project area.

   The facility should be developed so that it has two "front doors". The first such entrance should be in the vicinity of the intersection of Hargett and West Streets. This entrance should allow access to all areas of Union Station and provide clear access to the second level. From the second level, it should be easy to access Boylan Avenue and Morgan Street. The second "front door" should be in the vicinity of the intersection of Morgan Street and Glenwood Avenue. It should allow access to the second level of Union Station at grade with Morgan Street. It should also provide easy access to the first level. In general, Union Station should have two main levels of activity tied closely to transit functions and to associated on-site development.

2) **Development Proposal**: Develop first two levels in such a manner as to accommodate all needed bus facilities as well as the majority of the ~55,000 SF of development space required directly by transit users and providers. Additional private commercial development should occur on upper levels. Total development, including transit space should be a minimum of 8 stories with no maximum as guided by the Downtown Overlay District and Downtown Urban Design Guidelines.

B. Union Station Wye Block

1) **Planning Vision/General Strategy:** This area will serve three main purposes. The first is to house Amtrak service areas and platforms for the Carolinian line. The second is to provide a link between the Amtrak facilities it contains and the rest of Union Station. Finally, a significant portion of parking should be located in this area taking advantage of the area's topography and potentially linking with below grade parking established in the development of Block Cluster 4 (see below).
2) **Development Proposal:** Assuming that the Wye remains close to its current shape, develop a parking structure around Amtrak facilities (potentially including a small amount of related retail). The structure should be constructed so as to not obstruct views of the downtown skyline from the Boylan Bridge, e.g. it should be limited to a height of approximately 4 stories above the grade of the parcel. The level of the structure that is at grade with Morgan Street should provide a connection to the platform level, allowing connections to the second floor of Union Station, to Morgan Street and to Boylan Avenue. The top level of the structure should contain public open space.

   One of the alternatives discussed for the relocation of the Amtrak/long-distance rail platforms would result in a significant tightening of the footprint of the Wye. Should this alternative become preferred, the parking proposed for the center of the Wye would need to be located elsewhere.

Wye Block Area

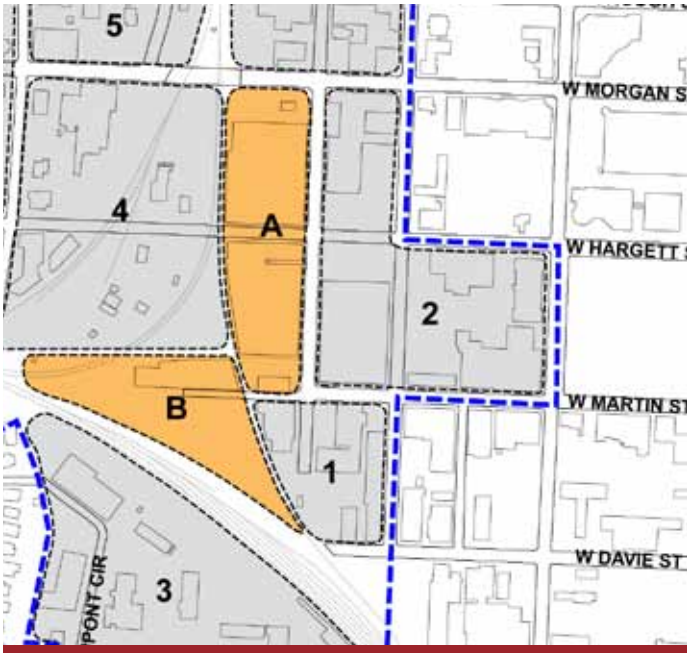

Raleigh's Depot District

Surrounding Project Area

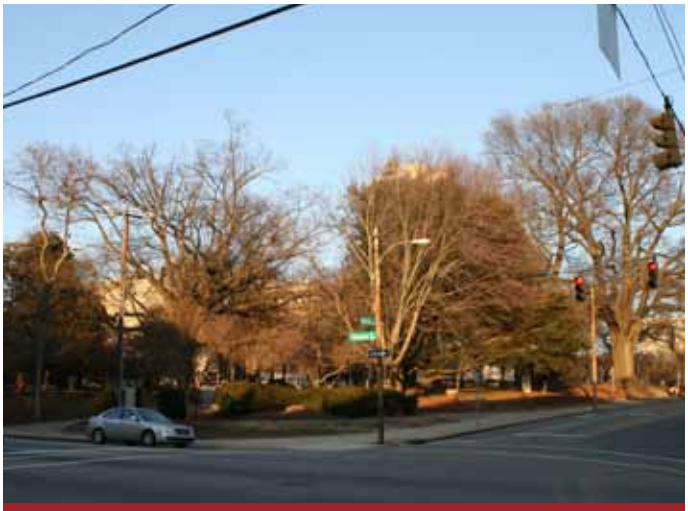
1. Depot District

a) **Planning Vision/General Strategy**: Preserve existing form and scale, if not actual buildings, in keeping with historic designation. The re-use of existing structures for commercial uses, especially dining, entertainment, cultural and creative, should (continue to) be encouraged Note that most of the area west of West Street will be lost for new track alignments.

b) **Development Proposal:** Pursue commercial development within the existing form and at densities similar to existing development, emphasizing adaptive re-use of existing structures and compatible infill/redevelopment with a maximum height of 4 stories.



Depot District Area

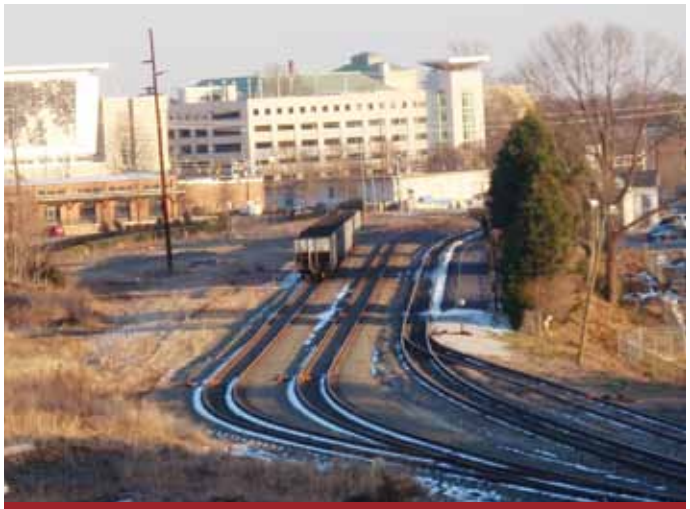


Nash Square — southwest corner

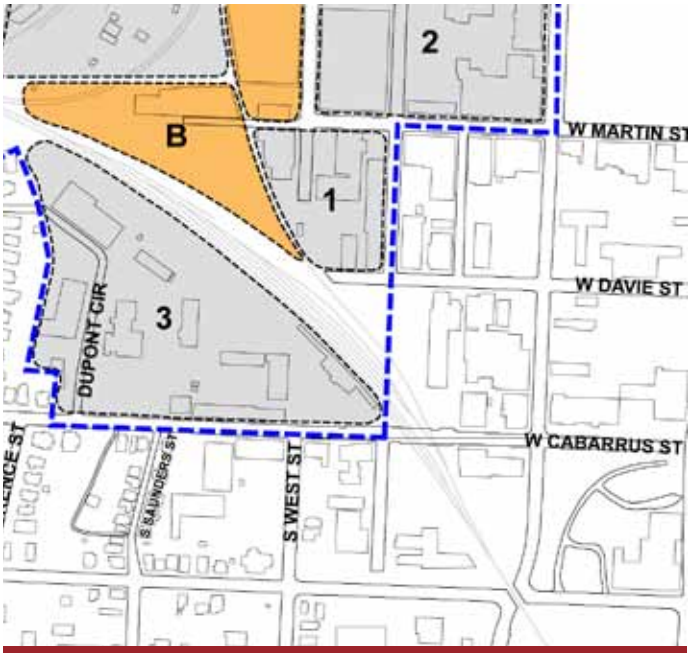
2. Nash Square to West Street

a) **Planning Vision/General Strategy**: Encourage redevelopment with mixed use projects at higher densities. Densities should approach those in central downtown (Fayetteville Street). Hargett, Martin and Morgan should be emphasized for retail uses. Heights should taper downwards towards Martin Street in order to preserve skyline views from the Boylan Avenue Bridge.

b) **Development Proposa**l: Pursue development with a maximum height of 8 stories. The commercial to residential use mix should be 2:1 and hotel uses may also be considered.



Tracks South of Wye



Area South of Wye

3. South of the Wye

a) Planning Vision/General Strategy: Much of this area is currently owned and operated by PSNC utility. While this facility is still in place, landscaping and other buffers should be maintained around the edge of the property. Should the PSNC site be made available for redevelopment, such development should be sensitive to the surrounding neighborhood. The use mix should be predominantly residential with some potential for office uses mixed in. Portions of the area may be needed for track re-alignment.

b) Development Proposal: Continue to maintain existing use as a "good neighbor" until re-development. Work with property owners to ensure land and access is available for track realignment and for any pedestrian or vehicular linkages that are needed through the area. Development should be residential/transition office at 15-30 units per acre with a maximum height of 8 stories.

Area West of Wye

Area West of Wye

4. West of the Wye

a) **Planning Vision/General Strategy**: Development of the area west of the Wye should take advantage of existing grades and look at options for developing in "air rights" over rail rights-of-way. Development should take advantage of the potential for shifting rail alignments. Grades and "air rights" should be utilized to potentially create a large decked area at a constant grade level with Morgan Street. Such an arrangement would allow for direct access from the deck to the second level of Union Station and allow for outdoor plazas and public spaces. Such a space should include parking on levels below the Morgan Street grade and potentially be connected to development on the Triangle Transit Wye property. Pedestrian linkages should be maintained across the area linking West Street with Boylan Avenue generally along the existing Hargett Street alignment. Development on top of the deck should be medium density mixed use, with an equal split between residential and commercial uses. Residential uses should predominate at the western edge of the area and commercial uses should predominate to the east. Heights should taper from east to west.

b) **Development Proposal:** Pursue development with about a 1:1 commercial to residential ratio. Heights should be limited to 5 to 8 stories, depending on grade level. Buildings should be placed and tapered so as to preserve views of the downtown skyline from the Boylan Bridge and Boylan Heights.

5. Glenwood South/Morgan to Hillsborough

a) **Planning Vision/General Strategy**: This block should continue the pattern of development occurring throughout Glenwood South; retail, dining and entertainment uses along with multi-family residential development at medium densities. Development should be coordinated with Block Cluster 4 to ensure a strong visual terminus for Glenwood South at Morgan Street. The intersection of Glenwood Avenue and Morgan Street should serve not only as a terminus, but also as a "front door" for Union Station and the connection of Union Station to Glenwood South.

b) **Development Proposal:** Pursue development with residential uses predominating at a 3:1 ratio versus commercial uses. Commercial uses should line Glenwood Avenue and be encouraged on Morgan and Hillsborough Streets. Heights should be a maximum of 12 stories, consistent with Comprehensive Plan Policy DT 1.15 which encourages greater height along axial streets (i.e. Hillsborough, Fayetteville, New Bern).

6. Western Edge/Boylan Avenue

a) **Planning Vision/General Strategy:** The existing development scale should be generally maintained with some infill development. Residential and commercial uses should be given equal weight.

b) **Development Proposal**: Pursue development with heights at 12 stories along Hillsborough Street transitioning to a maximum of 8 stories to the south.

7. Glenwood South/Edenton to Hillsborough

a) **Planning Vision/General Strategy:** As with Block Cluster 5, this block should continue the pattern of development occurring throughout Glenwood South; retail, dining and entertainment uses along with multi-family residential development at medium densities.

Glenwood South, from Morgan Street intersection

Glenwood / Morgan Street Area

b) **Development Proposal:** Pursue development with residential uses predominating at a 3:1 ratio versus commercial uses. Commercial uses should line Glenwood Avenue and be encouraged on Hillsborough Street. Heights should be a maximum of 12 stories.

8. Hillsborough and West Street Intersection

a) **Planning Vision/General Strategy:** Development in this area should be of similar scale and pattern to mixed use development occurring in Glenwood South. Retail development should be included along Hillsborough, Morgan, Harrington and West Streets.

b) **Development Proposal:** Pursue development with residential uses predominating at a 3:1 ratio versus commercial uses. Retail strongly encouraged along Hillsborough, Morgan, Harrington and West Streets. Heights should be a minimum of 8 stories with no maximum as guided by the Downtown Overlay District and Downtown Urban Design Guidelines.

9. Western Edge/Bloomsbury block

a) **Planning Vision/General Strategy:** New development currently under construction or proposed will occupy approximately ½ of the block cluster. The remaining portion of the area may have limited development potential due to geometry and future track alignment issues. Additional development that may occur should be of a compatible scale to surrounding development.

b) **Development Proposal:** Pursue development with an emphasis on residential uses and a maximum height of 8 stories.

Bloomsbury Area

The Bloomsbury Condiminiums, from Cabarrus Street

Implementation: Zoning

A well-considered development vision or strategy should consider the potential zoning solutions needed to achieve implementation. For base zoning, this analysis supports the recommendations of the City's existing Downtown West Gateway Plan that the project area should be rezoned to Business District. As would be expected, the effective full development of the project area will be under an overlay district. Two overlay districts suggest themselves as the most likely candidates. The Downtown Overlay District (DOD) currently covers nearly the entire project area and is therefore a potential solution. In order for the DOD to be effective, urban design and streetscape guidelines will need to be developed.

The other potential solution is Transit Oriented Development Overlay District (TOD) designation. TOD designation would rely upon the development of a station area plan. Such a plan seems to provide the best opportunity for defining the specific elements of Union Station and adjacent development, particularly if the station area were able to identify form-based controls for development. Furthermore, as the final development of Union Station will likely have multiple components, a station area plan built upon this development strategy will provide the opportunity to comprehensively address all facilities and the area that surrounds and connects them. The station area planning process will also allow an opportunity for additional community input to "fine tune" this vision.

An additional benefit of the TOD designation over the DOD designation is the removal of the requirement for a preliminary site plan. As private participation in the development of Union Station is likely a necessity, the elimination of the need for a preliminary site plan will allow a private developer a more stream-lined method of pursuing development in accordance with an adopted station area plan. Such increased certainty for a private development entity should increase the likelihood of the private development entity being able to provide additional public amenities and features. There are currently no areas within the City of Raleigh that have been given the TOD zoning designation, nor has any formal attempt been made to use the overlay. Therefore, it is difficult to estimate the length of time or difficulty in using this tool. Provided a station area plan that is clear and amenable to the development community and local residents can be created, the TOD designation is the preferred option.

The City is currently working on a complete rewrite of the zoning and development code as a Unified Development Ordinance (UDO). The UDO is expected to have a much more useful palette of mixed-use districts from which to draw when implementing zoning. Depending on whether timing is critical, the zoning recommendations may be best implemented following the adoption of the UDO.

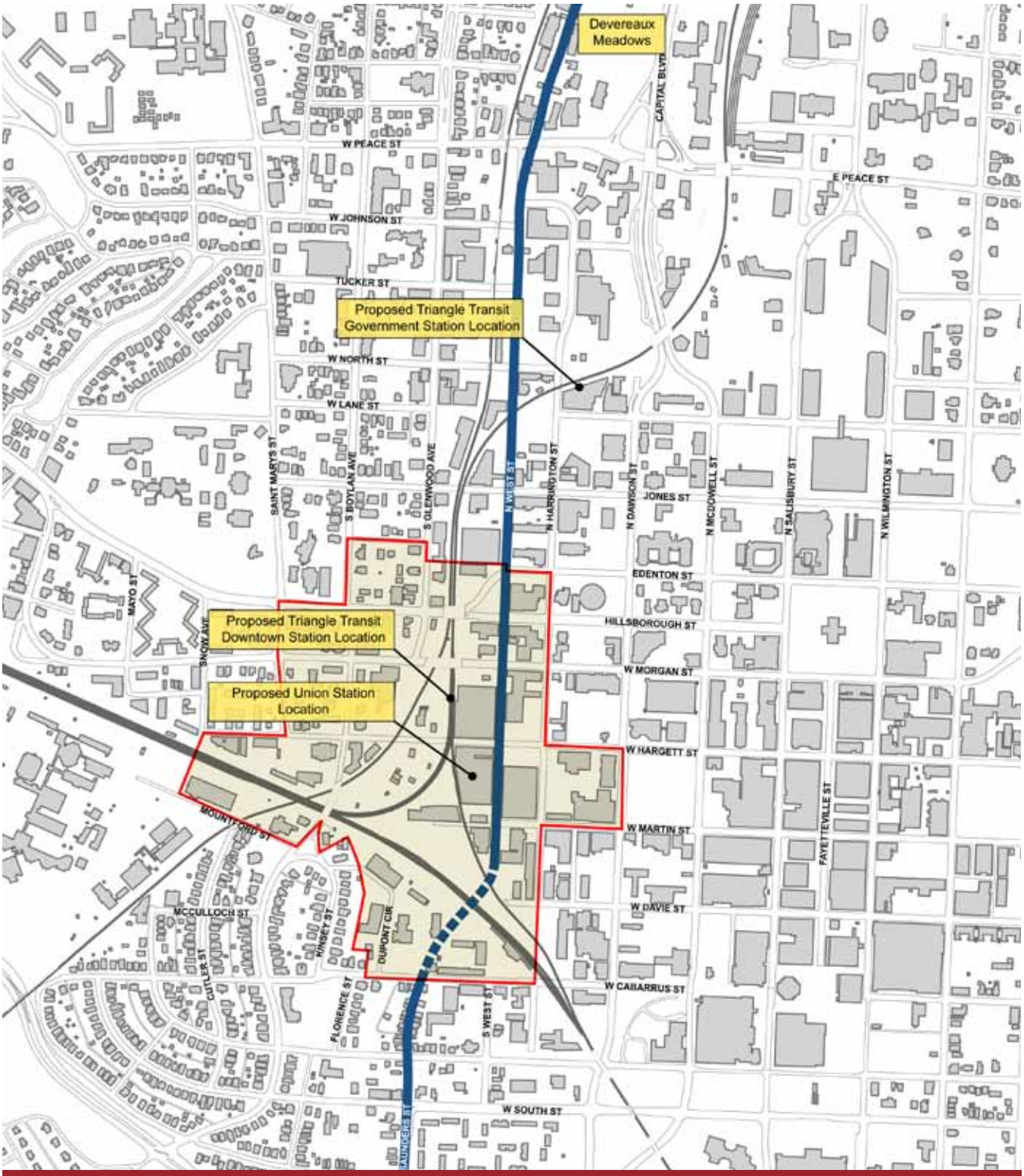
A well-considered development vision or strategy should consider the potential zoning solutions needed to achieve implementation.

Ensuring pedestrian and vehicular connections that are attractive, orderly and of adequate capacity is a key component of bringing about a successful Union Station and surrounding area development strategy.

Implementation: Pedestrian and Vehicular Connectivity

Ensuring pedestrian and vehicular connections that are attractive, orderly and of adequate capacity is a key component of bringing about a successful Union Station and surrounding area development strategy. The primary vehicular entrances to the site will be along West Street (in the vicinity of Martin Street to a new parking deck) and from Glenwood Avenue to the north. These access points will be augmented by nearby vehicular ingress and egress points, with considerations for separating public and transit vehicles.

As part of the Union Station development strategy, West Street will increase in prominence as a gateway to Union Station. In a separate study, the potential for creating a grade separated structure at the North Carolina Railroad has been considered due to existing and anticipated rail, vehicular, and pedestrian traffic. The preferred alignment extends West Martin Street southwesterly under the railroad tracks to the South Saunders / West Cabarrus Street intersection. The connection to South Saunders would serve longer trips, with connections possible to Lake Wheeler Road and Interstate 40. It would also improve connectivity to the Boylan Heights neighborhood, and help mitigate the loss in connectivity that would result from a Hargett Street closure. Construction of this alternative would provide enhanced access to Union Station, downtown, and beyond to Devereaux Meadows.



Proposed South West Street Extension

An extension of South West Street would create a new gateway entry providing connections from Interstate 40, to Union Station, the downtown, and beyond to Devereaux Meadows

The primary pedestrian connection to the east will be along Hargett Street. While Hargett is recommended to be closed to through vehicular traffic at West Street, a pedestrian connection through the site to Boylan Avenue should be maintained. Secondary connections to the east will be along Martin and Morgan Streets. Morgan Street will provide a connection to the government district to the northwest. The connection along Martin Street should facilitate a connection to the convention center along McDowell Street. Glenwood Avenue will provide the main pedestrian connection to the north, tying into the Glenwood South neighborhood. Boylan Avenue will provide one connection to the Boylan Heights neighborhood. An additional connection should be investigated across the Wye, possibly through the extension of West Street across the tracks to Cabarrus Street.

Implementation: Construction of Multi-Modal Center

The need for a multi-modal center is based upon the relocation of Amtrak services and the provision of additional passenger services including the Southeast High Speed Rail and Triangle Transit regional rail. In order to accommodate the shared location of these services, a phased approach to construction will be required. All phased implementation must be done in such a way that future construction will not disrupt already existing transit services, and that the provision of new facilities matches the need of each transit service. Phasing considerations and options are discussed in greater detail in Section 6 of this report.

Implementing the multi-modal center is complex and will take years to accomplish. For that reason, the City of Raleigh should take the lead to construct and operate Union Station. Since the property is owned and controlled by Triangle Transit, the City of Raleigh should pursue an Inter-local Agreement with Triangle Transit. This partnership would allow Triangle Transit to continue to own the land, but would allow the City of Raleigh to develop and operate the multi-modal facility. This approach would keep the relationship with the master developer in tact as well as the goal for mixed-use high density development above and surrounding the transit hub.

Because of the specialized skills required to negotiate the Inter-Local Agreement, and to plan and develop the multi-modal facility, the City of Raleigh should create a team whose sole responsibility would be to make the Union Station a reality. The City could either create these positions as part of city staff or contract with experts.

Implementation: Light Rail Transit

The above development strategy was arrived upon under a number of assumptions related to the future plans for transit services offered at the site. Key among these assumptions was that Triangle Transit would be using diesel multiple unit (DMU) technology for its future passenger service. Recent indications are that Triangle Transit is considering using light rail transit (LRT) technology instead of DMU. The switch to LRT, which could operate in existing street rights-of-way as opposed to operating in rail rights-of-way, would obviously have a significant impact on the design of the multi-modal facility itself. The resulting change in the design of Union Station along with the presence of LRT within existing streets would also impact the best overall development strategy for the project area. One major impact of the change could be to suggest a shift of the main access points, both vehicular and pedestrian. Trains would avoid going into the Wye. Morgan Street would gain increased prominence and as such would seem to be a natural major access way. The increased load on Morgan Street from LRT would force an examination of road capacity in this case in order to determine if the current right-of-way can handle the various modes (LRT, bus, car and pedestrian) that it will be asked to take on. The use of in-street LRT technology will also significantly affect the placement of boarding platforms and will have a ripple affect on the configuration of rail tracks due to the lack of need for Triangle Transit DMU trains to operate in the rail right-of-way. This major reconfiguration of platforms and tracks could re-shape Union Station, further altering ingress and egress points.

While the current strategy places the hub of development at the intersection of Hargett and West Streets, the use of LRT will place more of an emphasis on Morgan, suggesting a potential rethinking of this orientation. The positioning of retail and other land uses within the project area should also be re-considered to ensure that uses are aligned with the focal point of the development and with pedestrian and vehicular movements.

In summary, the move to LRT from DMU represents a significant shift in the planning of Union Station. Nonetheless, the major themes of this study are unaltered. Union Station needs to be a major force for development in downtown Raleigh and the surrounding area should be developed in a manner that reinforces this role by providing connections to adjacent activity centers and neighborhoods and by providing opportunities for mixed use development. The switch to LRT should not impact the overall use or intensity mix suggested above. What the shift may require is some new thinking to fine tune the location of specific uses and densities and some additional analysis to ensure that pedestrian and vehicular connections to Union Station and through the project area are able to function efficiently.

5.0 Technical Considerations

This section of the report describes the necessary infrastructure improvements for the implementation of the Raleigh Union Station.

Freight Track Realignment and Passenger Platform Locations

Rail Infrastructure Improvements

Improvements to the rail infrastructure are needed before any of the parking or building elements of Union Station can be constructed. Relocation of the rail lines defines developable parcel limits and establishes the passenger boarding platforms. Once these improvements are made, the Amtrak station can be relocated, the parking deck constructed, and the Union Station building designed.

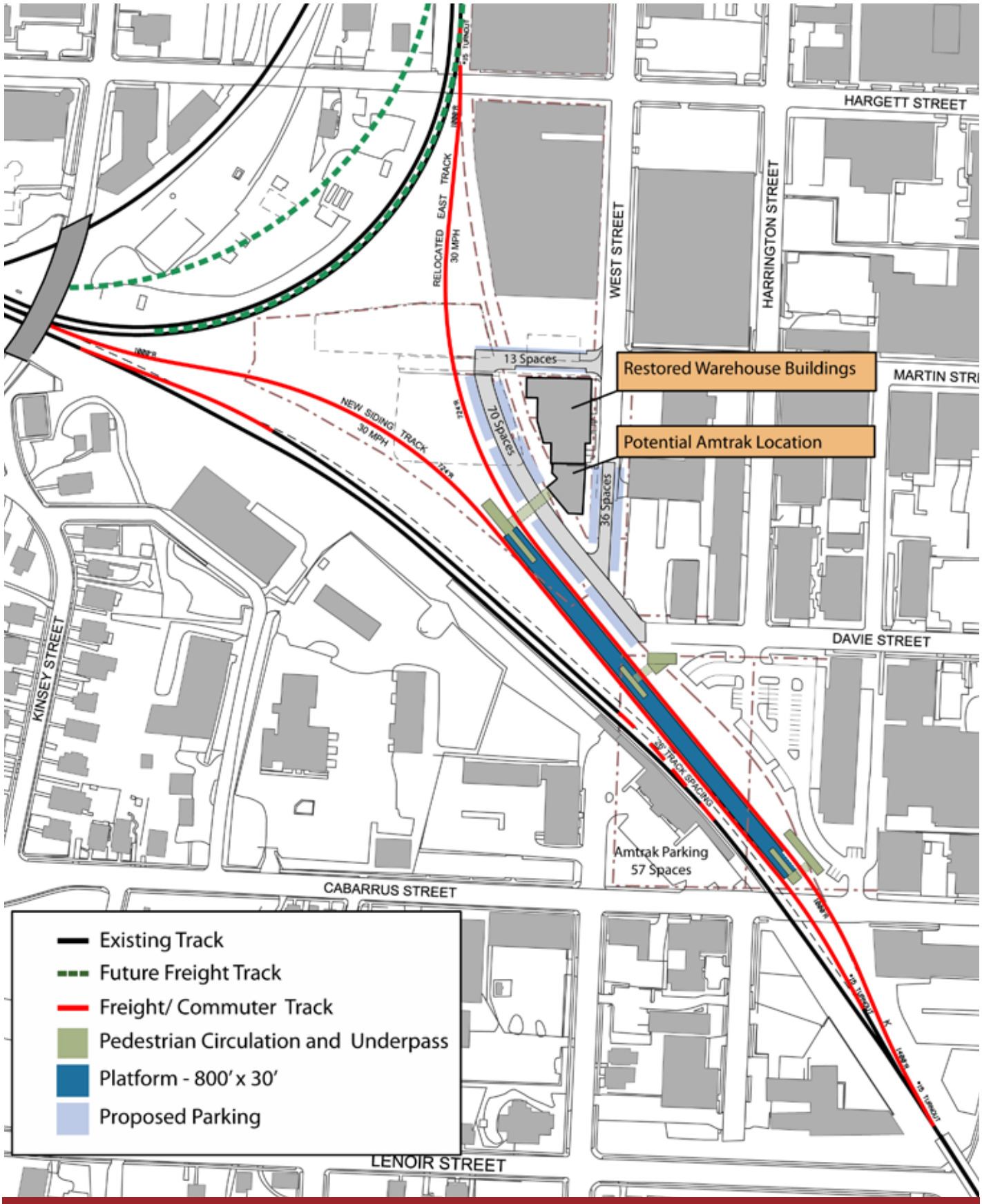
The phasing of the improvements can be roughly divided into those improvements needed on the south side of the Wye, primarily to the NCRR corridor, and the improvements needed on the north side of the Wye, primarily affecting the Norfolk Southern and CSX corridors. This separation is not clear cut, and some improvements on one side may affect track on the other side. Close coordination with the owning and operating railroads will be required.

Southern Side of Wye

The most immediate need is the relocation of the existing Amtrak station to provide increased passenger and parking capacity for the existing services. The conceptual plan is to relocate the platform into the interior of the Wye, on the north side of the tracks. The platform would be moved northwest along the track from the current platform in order to reduce the distance between this platform and the platforms for the other intercity train services. The platform would be adjacent to the parking deck planned for the interior of the Wye. This location allows a station to be constructed in the ground level of the parking deck

To accomplish this move, the NCRR tracks on the south side of the Wye need to be relocated, including the storage tracks opposite the current Amtrak station. This relocation nudges the tracks to the north and flattens the curve to provide the tangent track needed for the platform. The turnouts (switches) for the yard track and for the connections to the CSX and NS tracks on the west will need to be modified. This potential change has been reviewed by the various railroads and has not caused any objections. However, the land is owned by Triangle Transit and therefore would require their support.

A more aggressive alternative appears possible that further compresses the Wye by squeezing together the NCRR track and the connecting track between NCRR and CSX on the eastern side of the Wye. This realignment would allow a single platform to serve both the NCRR trains as well as trains traveling from north Raleigh toward Clayton and Selma. This option would require more extensive revisions to the yard track, but offers the potential for increasing the flexibility of using this platform. This option has not been reviewed by the various railroads, and would need their approval before being developed further. This option would also require the rebuilding of the Morgan Street bridge due to conflicts with the track location and the location of the bridge's piers. The overall merits and costs of this option need to be further examined.



Alternative South Platform and Track Location

Morgan Street and Hillsborough Street Bridges cross over tracks just north of Wye

Northern Side of Wye

On the north side of the Wye, the tracks need to be realigned to provide space for passenger platforms for future Amtrak trains, Southeast High Speed Rail (SEHSR), and potentially Triangle Transit regional rail. Along with this change are others designed to improve the overall operations of passenger and freight services and to provide more parcels suitable for development.

The western side of the Wye consists of two different and separated sets of tracks. The closer set, nearest to downtown, belong to CSX, while the more westerly set belong to Norfolk Southern (NS). The land in between was usable when the area was primarily industrial – it was home to a mattress factory, as ice plant, and a coal and wood yard back in 1914, and now has a sand and gravel yard, a vacant auto storage lot, and a Sprint communications hub. As long as these parcels are between two rail connecting tracks, they will be unattractive to the growing office, residential, and commercial development occurring in the vicinity. The current uses also detract from the environment and gateway function that the Union Station wants to achieve.

To rectify this situation, the Norfolk Southern S line can be relocated to be closer and parallel to the CSX tracks. This move reduces the footprint of the Wye, creating more parcels on the west side that could be redeveloped. These parcels can provide a lower-density development as a buffer against the higher density envisioned for the parcels on the downtown side. Coincident with the relocation of the Norfolk Southern S tracks, the

diamond crossings for the Fuquay-Varina line can be replaced with a set of turnouts. Doing so improves overall operations and safety by eliminating the crossing maneuver.

Passenger platform(s) will be constructed north of Hargett Street. The location of these platforms has not been settled due to uncertainty associated with the Southeast High Speed Rail (SEHSR). Two alignments are being considered for the SEHSR as part of its Environmental Impact Study. One route is along the CSX corridor, which would place the SEHSR closest to downtown; the other alignment is along the Norfolk Southern corridor, which places it closer to Glenwood South. If the CSX corridor is selected, it's anticipated that two side platforms will be needed for passenger boarding. If the Norfolk Southern corridor is selected, one center platform works best.

The track relocations on this side of the Wye are anticipated to require the rebuilding of two bridges due to conflicts between the track location and the location of the bridge piers. At Boylan Avenue, the middle bridge piers interfere with the redesign to eliminate the diamond crossings. At Morgan Street, if side platforms are constructed, no rebuilding is required, but if a center platform is constructed, as is now favored by NCDOT-Rail Division, a set of bridge piers would be in the middle of the platform.

NCDOT Rail Division Alternative

Background

The Union Station Facility study took place during a period of evolving considerations for passenger rail services including Amtrak and NCDOT conventional intercity service, Southeast High Speed Rail (SEHSR), Triangle Transit, and for commuter rail opportunities within the NCRR corridor. Several elements of the multi-modal transit center identified in this study are in a state of flux including railroad track alignments, passenger platform locations, and passenger lobby locations. An Alternative to the Phase 1 Amtrak scenario discussed in the study has been suggested by the NCDOT Rail Division upon review of the final draft report, and is presented below in order to disclose the most recent rail system discussion and design considerations.

There are several rail design factors that have not yet been finalized. They include the Federal Railroad Administration (FRA) approval of the SEHSR Tier 2 Environmental Impact Statement, which will dictate whether the future SEHSR service corridor uses the Norfolk-Southern or CSXT tracks north of the railroad Wye in Raleigh. A decision by FRA is expected in September 2010. Secondly, Triangle Transit is currently evaluating train vehicles, alignments, and station locations in order to provide an updated regional transit service plan. NCRR is preparing a commuter rail ridership and market study for the 140 mile corridor that extends through Raleigh from Goldsboro to Greensboro. The result of all these efforts will play a significant role in the phasing and ultimate layout of the Union Station facility.

An important rail service element discussed in the Union Station Report is a first phase of the Amtrak station, and platform relocation from south of the Wye to an interior location adjacent to the eastern leg, in order to increase passenger and parking capacity and better connect the station to the downtown core. The NCDOT Rail Division reviewed this element and suggested an alternative to the approach discussed elsewhere in the report.

Platform Improvements

NCDOT recommends two phases of the platform improvements that would accommodate existing and future rail services. These services include conventional intercity trains (Amtrak/NCDOT), commuter rail operations, and future SEHSR trains.

Phase 1 would include a 1,000 foot long center island platform with a dedicated passenger track on each side, within the south leg of the Wye. The east end of this platform would be aligned approximately halfway between Davie and Cabarrus Streets. The west end would align approximately with Martin Street. The existing NCRR/NS mainline track through the Wye area would remain on its current alignment. Right of way would be preserved for a future second NCRR/NS mainline track parallel to the existing mainline. The center island platform tracks would tie into the mainline tracks near Boylan Avenue bridge on the west end, and near Cabarrus Street on the east end. The Phase 1 platform would serve conventional intercity trains such as the Silver Star, Carolinian, and Piedmont. The platform could also be used for initial commuter and SEHSR services via pull-in and/or backup train movements.

NCDOT also foresees Phase 2 platform locations. These would be constructed when passenger train frequencies exceed the capacity of the Phase 1 center island platform. With multiple commuter and SEHSR frequencies, pull-in and/or backup movements will create unacceptable operational delays. Therefore NCDOT recommends the construction of a dedicated commuter rail platform along the east leg of the Wye, as well as a dedicated SEHSR center island platform along whichever northern corridor (north of Hargett Street) is designated by the FRA. According to NCDOT, this Phase 2 scenario, as it relates to the proposed commuter rail platform location, is only feasible if the Triangle Transit platform is not located in the Wye as previously proposed.

The commuter platform should be a minimum of 400 feet in length to accommodate a train consisting of one locomotive and four bi-level cars. Commuter routes to and from Wilson, Henderson, Selma and Goldsboro could be handled at this platform. By locating the platform on the east side of the Wye's eastern track, passengers would have direct access to downtown Raleigh, with minimized walking distance.

The SEHSR center island platform would be generally located between Hargett and Hillsborough Streets along either the Norfolk Southern or CSXT rail corridors, depending of the FRA decision. Some conventional long distance intercity trains such as the Silver Star may be rerouted over the future SEHSR corridor. Piedmont passenger trains which begin and end in Raleigh could also use the Phase 2 northern center island plaatform, or continue to use the Phase 1 center island platform, or some combination of the two.

Amtrak Facility and Parking Improvements

Regarding the Phase 1 Amtrak facilities, NCDOT recommends that they be generally located in the block bounded by the east leg of the Wye, Hargett Street and Martin Street. This location would provide similar walking distances from the waiting areas to the Phase 1 and 2 center island platforms. Grade separated connections between the waiting and service areas to the platforms would be provided by overhead or underground structures. This station location would also accommodate the commuter rail waiting and service areas immediately adjacent to the Phase 2 commuter platform, which would be accessed at grade.

Amtrak passenger waiting and service areas should be a minimum of 15,000 square feet, versus the 4,800 identified in the study, as the existing station is undersized at 5,000 square feet. NCDOT also recommends that the Phase 1 facility include a minimum of 180 parking spaces versus the 90 shown in the study. Again, the existing station has an immediate demand for 180 spaces, and will quickly outgrow that as additional frequencies are added. NCDOT's recommended facility and parking needs are based on extensive prior experience designing, constructing, and operating passenger facilities in North Carolina. The Raleigh station Phase 1 facilities should accommodate significant and immediate growth of conventional intercity, commuter, and SEHSR rail services.

Structured Parking

NCDOT's recommended platform improvements may require preserving the existing open space in the Wye. The structured parking indicated in the facility study within the Wye would need to be located outside of the Wye. However, there appears to be space to accommodate this adjacent to the Wye, West Street, and the station building.

A sketch map is provided in the appendix of this report to further illustrate the suggested platform locations.

NCDOT Rail Division has proposed an alternate approach:

two phases of platform improvements that would accommodate existing and future rail services and arrange platforms differently; increase square footage for the Amtrak passenger waiting and service areas; and increase parking

Bridges, Streets, and Sidewalks

The three bridges over the Wye are all relatively new: Boylan Avenue was built in 1983, Morgan Street in 1999, and Hillsborough Street in 2003. These bridges were constructed to accommodate the current freight track locations; no design work had been done at the time to determine future track locations to accommodate the Southeast High Speed Rail (SEHSR) or Triangle Transit rail plans. These are strictly utilitarian structures, with little ornamentation. Sidewalks are five-feet wide in every location except the north side of Hillsborough where it varies from 5 to 15 feet. The undersides of the bridges are simple concrete support piers, with exposed girders and plain retaining walls. For an industrial area, design features are not needed, but with the construction of the Union Station, the undersides of these bridges will be highly visible, with the Morgan and Hillsborough bridges actually covering a portion of the boarding platforms. A higher level of "finish" would improve the attractiveness and "gateway" aspects of the Union Station.

A related bridge question concerns Hargett Street. This street crosses the northern side of the Wye at grade. With the new Amtrak and SEHSR platforms on this leg of the Wye, and potentially Triangle Transit's Diesel Multiple Unit (DMU) platform in the same area, an at-grade crossing will be subject to numerous delays and safety concerns. Closing the crossing, however, would interrupt the street grid in the area, although Morgan Street is located a block away. A tunnel or bridge poses engineering challenges due to the close spacing of the intersecting streets, and a bridge would interfere with constructing Union Station as a unified facility spanning Hargett Street. The City is in discussions with NCDOT Rail Division on what potential options may exist. NCDOT Rail Division would like to either close or grade separate this crossing along with all other crossings on the SEHSR route.

Underside and surroundings of existing bridges in vicinity

As a separate study, the potential for extending West Street to the south has been examined. The study revealed a preferred alternative that would extend West Street to the southwest under the railroad tracks to the South Saunders Street/W. Cabarrus Street intersection and would include quality pedestrian and bicycle accommodations. (Refer to South West Street Connection diagram in Section 4).

Sidewalks need to be widened and improved throughout the area. At full operation, Union Station will be the largest single pedestrian trip generator in downtown Raleigh. The current sidewalks are narrow, ranging from 5 to 10 feet in width, and have many obstructions. They do not meet the Americans with Disabilities Act standards and are undersized with respect to future demand. City standards for this area require sidewalks 14 to 18 feet wide. Improved sidewalks will encourage users to explore the area, and will extend the reach of circulator services. Sidewalks should be improved to provide an easy connection to the downtown office core and convention center; to Glenwood South; to Boylan Heights; and connecting with the recent sidewalk improvements along Hillsborough Street. The existing sidewalk width on the Morgan Street bridge is of particular concern. With a Union Station entrance proposed on Morgan Street, the existing 5 foot sidewalks will not be adequate and opportunities to widen are limited without bridge expansion. The Downtown element of the Comprehensive Plan designates several streets in the vicinity of Union Station as Pedestrian Priority Streets, including Hargett, Martin, Hillsborough, Glenwood, West and Harrington.

Vicinity sidewalks are narrow, sketchy, or nonexistent

Bicycle improvements are required to establish a designated bikeway to Union Station from downtown. The station plan envisions a connection between the Union Station and the Rocky Branch Trail greenway at Western Boulevard. This connection could either be along an existing street (Boylan, Dawson, McDowell), or along a potential new West Street connection south to Saunders Street. This new route is under separate consideration for implementation. It will require a grade separation with the railroad, and current conceptual plans include a wider multi-use path on one side. The Bike Plan calls for a "sharrow" (shared bike and vehicle lane) along West Street, and the connection south to South Saunders Street would improve the bicycle accessibility.

Facility Service Requirements

The Union Station elements are arranged around a central lobby space. The lobby space includes room for ticketing, baggage, waiting, and retail. Separate wings or concourses lead patrons to their specific mode, whether transit or automobile. Connections are provided to link Union Station to the surrounding areas, particularly Boylan Heights, Glenwood South, and downtown. The building and associated developments will be the central gathering place on the west side of downtown and will serve as the non-auto gateway to the heart of the city.

Building Interior

Space requirements for Union Station were estimated for three building elements: passenger processing (ticketing, baggage, back office), waiting lounges, and retail/amenity space. The estimates were developed from the projected ridership levels on each of the travel modes applied to industry guidelines.

Bus Facilities at Moore Square

The total station size is estimated to be 36,000 square feet of usable space. When including 25 percent extra for circulation and wall space, the total building size is estimated to be 44,800 square feet. Included in this space is room for ticketing, baggage, passenger waiting, amenities, and an estimate for the amount of restaurant and retail space that could be supported by the transit patrons. Additional retail space will be required if the building is designed to draw in patrons from the surrounding area.

Amtrak has about 120,000 annual boardings and alightings combined, or an estimated 75,000 annual boardings. Applying Amtrak design guidelines, it needs about 3,900 square feet of usable space, or 4,800 total square feet. A sizable growth in intercity rail demand is projected due to the addition of more traditional Amtrak service and the introduction of high-speed rail service. These services are projected to attract 590,000 additional boardings and alightings per year, or 400,000 additional annual boardings. Based upon this growth, intercity rail services need an additional 19,600 square feet of usable space and 24,500 total square feet. These services encompass more than half of the projected building needs.

Intercity bus services are projected to have around 700,000 annual boardings and alightings, or 350,000 annual boardings. The space requirement for this passenger volume is 7,500 square foot usable space or 9,400 total square feet. No growth is projected by Greyhound.

Local bus patrons on CAT and Triangle Transit do not require much space since these patrons do not have luggage, do not need to check in, and generally arrive at their boarding location shortly before their bus is scheduled to depart. From existing ridership, an estimated 1,700 square feet of usable space and 2,100 total square feet are required. In the future, a modest 200 square foot increase is projected to be warranted based upon the introduction of additional bus routes.

In the future, Union Station will need to accommodate riders on regional or commuter rail envisioned as part of Triangle Transit's long-range plan. Previous studies have estimated 1.72 million annual boardings and alightings, or 858,000 annual boardings at this facility. This passenger volume is over one-third of the total passenger activity at the Union Station, and the largest amount carried by a single travel mode. These passengers, however, do not require as much building space as other modes for the same reasons that local bus patrons do not. As a result, the projected space need is 2,300 square foot usable space and 2,900 total square feet.

The majority of the above space needs will occur in the future as additional intercity and regional rail services are introduced. In the near-term, only about one-third of the total space, or 16,300 square feet are projected to be required. The Southeast High-Speed Rail is estimated to come on line in 2017, and the Triangle Transit regional rail would be later. When these services are implemented, an additional 28,000 square feet will be warranted. Some additional rail services are possible in the interim, most likely including additional traditional Amtrak trips, but may also include commuter rail service.

Mode	Current Needs Gross Square Footage for Passenger Processing	Future Expansion Gross Square Footage for Passenger Processing
Amtrak	4,800	10,600
Intercity Bus	9,400	9,400
Local Bus (CAT & Triangle Transit)	2,100	2,400
Regional or Commuter Rail	—	3,400
Southeast High Speed Rail	—	19,000 (by 2017)
	16,300	**44,800**

Interior Space Requirements — Space Needs by Mode

Included in this (44,800 square foot) space is room for ticketing, baggage, passenger waiting, amenities, and an estimate for the amount of restaurant and retail space that could be supported by the transit patrons.

Boarding Platforms

Loading space for the transit vehicles is based upon the operators' standards, and expected passenger and vehicle volumes, with some flexibility to reflect any site constraints. Amtrak's current platform is just over 700 feet in length. As a rule, Amtrak prefers this length for corridor trains, and a length of 1,200 feet for long-distance trains, but will accept minimum lengths of 300 and 500 feet respectively. As a practical matter, Amtrak would prefer to have a platform of at least 1,000 feet.

Americans with Disability Act (ADA) requirements identify the importance of locating rail platforms on a tangent (straight) track so that the passenger cars can be flush with the boarding platform and not create a gap between the rail car and the platform edge. The current designs for Union Station envision a platform length of about 800 feet—the longest length that can be provided on a tangent. Depending upon the ultimate train lengths, this platform length could result in some operational compromises, but it is adequate for all currently envisioned train sets. Two to three platforms may be required depending upon whether one center platform or two side platforms are provided on the northern leg of the Wye.

Greyhound projects that they will need 8 bus bay locations, the same as provided at their current facility. Eight bays are more than required by current schedules, but will provide maximum flexibility in allowing for extraordinary events.

The local buses operated by Triangle Transit and CAT were originally envisioned as needing off-street space, with a central boarding platform. Subsequent review of operations indicated that these buses would remain on the street and not enter the facility. A loading area would be required along the curb adjacent to the Union Station. Assuming that buses do not dwell for more than one minute each, an estimated two curb bus bays totaling 150 feet in length are required, or about one-third of a north/south block length or over half an east/west block.

Triangle Transit's rail plans will require a separate platform for its rail vehicles regardless of whether the DMU or light-rail technology is selected. Under the DMU option, Triangle Transit designed a 350-foot long center platform. This design should be incorporated into the multi-modal station if this technology is selected. If light-rail is chosen, its routing is anticipated to be in-street entering downtown along Morgan Street and turning north on West Street. Between 200 and 400 feet of length will be required for the station platform, or essentially all of an east/west block and at least half of the north/south block. For operational reasons, the on-street bus bays should not be located on the same block as the light-rail platform, though the ease of passenger transfer between Triangle Transit rail and local bus services must be accommodated since this is where most transfers could occur.

Parking Demands

While the Union Station is primarily a transit facility, a number of users will arrive by car, either to be dropped off or to park. Based upon industry guidelines and local circumstances, an estimate of the short-term and long-term parking needs for each mode was developed. Short-term here is defined as people parking less than 3 hours, primarily kiss and riders. Long-term is anyone parking more than 3 hours, including overnight parkers on the intercity services. Parking demand has been adjusted downward to reflect the potential sharing of spaces among modes since their peaks occur at different times. Overall needs are estimated to be 1,250 spaces.

Near-term Needs

Detailed information is included in the Preliminary Transit Vision Report (see Appendix) and is summarized here. Total short-term demand is approximately 30 spaces and long-term demand is 140 spaces. Experience has shown that users will perceive a parking deck as full when about 85 percent of the spaces are full. An additional 30 spaces should be provided as a cushion to account for circulation needs and parkers that take up more than one space. Total parking needs for the immediate future are estimated to be 200 spaces.

Parking Demand

MODE	NEAR-TERM NEEDS			LONG-TERM NEEDS		
	SHORT-TERM PARKING	LONG-TERM PARKING	CIRCULATION	SHORT-TERM PARKING	LONG-TERM PARKING	CIRCULATION
Amtrak	20	70		20	70	
Greyhound	10	20		10	20	
Local/Regional Bus		50	30		50	
Rail Service	—	—	—	170	750	170
Total	30	140	30	200	890	170
	200			**1,250**		

Parking demand has been adjusted downward to reflect the potential sharing of spaces among modes since their peaks occur at different times. Overall needs are estimated to be 1,250 spaces.

Amtrak requires 20 short-term spaces and 70 long-term spaces. This demand is slightly below Amtrak's current estimated need for 100 spaces, but reflects the ability to share spaces with the other modes.

Greyhound has modest needs for 10 short-term and 20 long-term spaces. Greyhound officials do not foresee a demand for long-term parking, but a modest amount has been estimated based upon experience in other locations.

The local/regional bus services provided by CAT and Triangle Transit have an estimated need for 50 long-term spaces for daily parkers. Officials at these agencies do not foresee this demand, but based upon experience at other agencies, up to 3 percent of bus riders will park and ride on local services.

Long-term Needs

Parking demand is projected to increase substantially in the long-term as more intercity rail services are provided, and as Triangle Transit implements its rail service. An additional 170 short-term spaces are estimated to be needed, and an additional 750 long-term spaces are estimated to be needed. Circulation requires 140 spaces, in addition to the 30 spaces included for circulation in the near-term needs assessment. The total additional spaces are therefore estimated to be 1,060. Total parking, including the immediate term needs are approximately 200 short-term, 890 long-term, and 170 for circulation, with a grand total of approximately 1,250.

Present accomodations for parking and taxis at Amtrak Station

The majority of the additional spaces are due to the introduction of the additional intercity rail services. Ridership estimates, and hence parking demand is considered to be conservative by the SEHSR studies, but the parking demand estimate could be on the high side given the amount of connecting transit services. Triangle Transit demand has been estimated based upon the Environmental Impact Statement (EIS) prepared for the previous Diesel Multiple Unit option, with adjustments to provide short-term and circulation spaces. Total Triangle Transit spaces are estimated to be 40 short-term and 340 long-term, plus 60 spaces for circulation. The remainder of the spaces is for the intercity rail demand.

Taxi Stands

Parking spaces need to be provided as locations for taxis to stage. Approximately 13 taxi spaces are provided currently among the three locations (Amtrak, Greyhound, Moore Square). From a limited amount of national statistics, an estimated 8 taxi spaces will be required at Union Station.

Rental Cars

One concessionaire under consideration for Union Station is one or more rental car companies. Interior space has been included in the concessionaire calculation, but rental car companies also require parking spaces for their vehicles. These parking spaces should be located in close proximity to the rental car counters. An estimated 8 spaces are required.

6.0 Project Phasing

This section of the report describes the potential phased implementation of Union Station and the costs associated with each phase.

The needs for a multi-modal transit center arise when Amtrak and Greyhound are relocated, and when additional services, the Southeast High Speed Rail (SEHSR) and Triangle Transit's regional rail, are implemented. The phasing of these moves and the construction of the facility will be challenging to accomplish.

What follows is one suggestion of how the facilities that are part of Union Station can be phased in. Additional options are possible depending upon the timing of the transit improvements. All phased implementation must be done in such a way that future construction will not disrupt already existing transit services, and that the provision of new facilities matches the need for each phase's demand.

Phase 0 – Environmental Clearance and Preliminary Engineering

The initial phase of work should be obtaining the environmental Record of Decision for the entire Union Station project, and the completion of the preliminary engineering phase for Union Station. Some environmental work has already occurred as part of Triangle Transit's DMU design. This environmental examination will need to be updated, and additional properties analyzed. Other environmental studies are underway for the SEHSR.

Preliminary Engineering (and final design) work has only been completed for the Triangle Transit DMU design, which included a simple platform with parking for Triangle Transit rail. This engineering will need to be redone to reflect the expanded scope of the overall Union Station. Preliminary Engineering will need to be completed prior to obtaining the environmental Record of Decision. It is anticipated that the funding parties, primarily the three federal agencies – Federal Transit Administration (FTA), Federal Railroad Administration (FRA), and the Federal Highway Administration (FHWA) will expect this full analysis of the overall Union Station rather than only considering one or more individual elements. Environmental impacts will accrue based upon the overall facility.

A range of costs in current dollars has been developed. Given that Union Station is only in the programmatic phase, a high contingency amount in keeping with federal guidelines has been included. Costs for final design and construction management are also included.

Anticipated Low Cost:

$10.0 million, based upon the estimated cost for the Union Station, and a 35% contingency

Anticipated High Cost:

$11.3 million, based upon the estimated cost for the Union Station, and a 40% contingency

Phase 1 – Amtrak Relocation

The most immediate need is the relocation of the existing Amtrak station to provide increased passenger and parking capacity for the existing services. One conceptual plan is to relocate the platform into the interior of the Wye, on the north side. In conjunction with this move, the freight lines on the south side of the Wye will need to be reconstructed, and additional parking provided.

During this first phase, a small parking deck of around 200 spaces is required. This deck is located in the interior of the Wye. Amtrak will have a temporary station constructed in the ground level, adjacent to the new platform constructed on the opposite side of the tracks from the current platform. This space is assumed to be slightly larger than the current station, and portions of it could be converted to retail or parking when the Union Station lobby space is constructed. A small departure lounge would remain to provide a waiting area near the platform.

The freight line relocations assume that the track realignment on the south side of the Wye can be implemented independently of the changes on the north side of the Wye. The southern adjustments will require the rebuilding of the Boylan Avenue bridge to place the support columns where they will not interfere with the relocated tracks. Additional improvements will be made to widen sidewalks, install appropriate wayfinding to the new parking and station location, and for utility relocation and environmental mitigation.

In the cost breakdown below, the building costs relate to the Union Station structure, the infrastructure costs relate to rail and roadway improvements, and the soft costs relate to final design, construction management, and environmental costs.

Anticipated Low Cost:

Building Costs ..... $9.0 million
Infrastructure Costs ..... $15.7 million
Soft Costs ..... $6.9 million
Total Costs..... $31.6 million

Anticipated High Cost:

Building Costs ..... $14.4 million
Infrastructure Costs ..... $18.9 million
Soft Costs ..... $8.4 million
Total Costs..... $41.7 million

These costs do not include any right-of-way costs. Based upon currently assessed values, ROW acquisition could be another $1.5 million.

Phase 2 – Greyhound Relocation

In Phase 2, Greyhound is relocated and the initial phase of the overall Union Station lobby is constructed. This lobby is anticipated to be located on the block bounded by Morgan Street on the north, the railroad on the west, Hargett Street on the south, and West Street on the east. Space for Amtrak's needs will be constructed, but Amtrak's ticketing will continue to remain within the parking deck constructed in Phase 1, since a block separates the new Union Station lobby from the Amtrak platform. No additional parking is constructed during this phase. This phase could occur at the same time as Phase 1 if Greyhound is supportive and if sufficient funding is available.

Anticipated Low Cost:

Building Costs ..... $13.0 million
Soft Costs ..... $3.6 million
Total Costs..... $16.6 million

Anticipated High Cost:

Building Costs ..... $23.2 million
Soft Costs ..... $5.9 million
Total Costs..... $29.1 million

Amtrak Station, Raleigh NC

Greyhound Station, Raleigh NC

Phase 3 – Full Union Station Buildout

In Phase 3, the full Union Station facility is constructed. The timing for this construction should be to bring the full facility on line at the same time as new intercity/high speed rail is introduced coming from the north. This new service will require an additional platform, and more waiting/ticketing space to accommodate the new passengers. Amtrak's ticketing/baggage functions will move into the main Union Station lobby area. The Amtrak space within the parking deck will be downsized to maintain a small departure lounge only.

Constructing the full Union Station at the time of the first new intercity rail route will result in some excess space, but a phased construction of the new facilities would be difficult. All passenger modes and all boarding locations will be in place; no one area of the Union Station can be deferred as a result.

The remaining freight track relocations on the north side of the Wye will be implemented at this phase. Relocating these tracks and constructing the new boarding platforms will require the reconstruction of the Morgan Street bridge.

The additional 1000+ parking spaces needed for the full facility will be constructed, either within the Wye or on the block bounded by Hargett Street on the north, the railroad on the west, Martin Street on the south, and West Street on the east. The location of the parking deck will be dependent upon Triangle Transit's rail plans. With this construction, the Union Station lobby, including the Greyhound space, will be connected with the southern Amtrak platform.

Phase 3 does not need to wait for the Triangle Transit rail to be built, but it will need the alignment for the Triangle Transit rail to be established. As regular commuters, Triangle Transit's passengers will not require much space within the Union Station, so there is no advantage to phasing in this additional space. An estimated cost for the Triangle Transit station has been included, but no costs are included for the construction of the Triangle Transit rail line since the alignment and technology has not been determined. Additionally, costs are not included for the potential bus expansion space which requires decking over the platform area along Morgan Street. An order of magnitude understanding of this cost is estimated to be approximately $10 million.

Next Steps	
Phase:	Budget (millions)
Phase 0 — Environmental Clearance and Preliminary Engineering	$10 – 11.3
Phase I—Amtrak relocation	$31.6 – 41.7
Phase 2—Greyhound Relocation	$16.6 – 29.1
Phase 3—Full Station Build out	$74.2 – 139.6
TOTAL	**$150.9 – 212.4**
Estimated City of Raleigh Contribution (@10%)	**$15 – 20 million**

Summary

In summary, the Union Station facility can be implemented in three construction phases, but the initial environmental clearance should be for the entire facility. Overall estimated costs are:

Anticipated Low Cost:

$150.9 million

Anticipated High Cost:

$212.4 million

These costs do not include any ROW acquisition costs. Based upon currently assessed values, these costs could be around $4 million.